

FLIGHT

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Encouraging

DESCRIBING this year's King's Cup Race as a complete success would be an exaggeration. If one were asked to dismiss it in one word, that word would inevitably be "encouraging." Not only was the attendance at Hatfield last Saturday a great deal better than we have seen at a King's Cup Race for a good many years, but the handicapping can only be described as excellent, and the fact that "Tommy" Rose's Falcon had a walk-over could hardly have been foreseen.

One risk which arises through holding an eliminating trial of the nature of that flown last Friday relates to the number of entries in proportion to the number of aeroplanes which can reasonably be accommodated in the final. It might so happen that the number of starters in one class was exactly the number which it had previously been decided to pass into the final. In that case the eliminating trial would become a mere farce, as the machines could cruise around the circuit at sixty miles per hour.

Last week we referred to the unfairness imposed upon the slower machines by the fact that the fastest ten in each class were to go into the final. This meant that the slower were compelled to fly closer to full throttle if they were to have any chance of reaching the final. We express no opinion on the advisability or otherwise of discouraging the slow machines as far as the King's Cup is concerned. It is a perfectly defensible attitude to take, and a very good case can be made out for making the regulations such as to encourage the fast and discourage the slow aeroplane. It does, however, seem doubtful whether the fairest way of doing this was chosen.

Unless we are to make a change in the character of the King's Cup Race next year by making it a formula race, it would appear that a fairer way might be to

handicap for the eliminating trial, and to admit to the final the ten—or whatever number was decided upon—machines which beat their handicap by the greatest margin. This would tend to give the slower machines as much chance as the faster. If it be desired to keep out the slow type, this could be done by raising the lowest speed at which the machines were handicapped. This year that speed was 130 m.p.h. For next year it might be raised to 135 or 140 m.p.h.

One would probably have a different handicap for the final, which should be, as this year's, over a short course. It might even be well to re-handicap the twenty machines for the final in accordance with their performance in the eliminating trial. In that way as close finishes as possible should be achieved.

Navigation Simplified

The weather was perfect this year, both for the eliminating trial and for the final. One result of this was that navigational problems were reduced to their simplest form, and the few failures to complete the course which occurred were due purely to mechanical defects. Out of the 29 aeroplanes which started from Hatfield on Friday morning 23 finished the course. Twenty machines started in the Final, and 20 finished. These figures speak well for the reliability of the modern aero engine, the more so as many of those which completed the final had been run very nearly at full throttle during the 953 miles' flight of the eliminating trial on the previous day.

One encouraging result of this year's King's Cup regulations was that the speed at which the race was won increased from the 150.3 m.p.h. of Atcherley's 1929 Gloster Grebe to 176.3 m.p.h. Another "milestone" in the race was set up by Captain Percival, whose Mew Gull was the first aeroplane to exceed 200 m.p.h. in a King's Cup Race. Both achievements indicate real progress.

Licensing Air Lines?

ONE of the duties of the recently appointed Maybury Committee is generally thought to be rationalisation of internal air lines. Nobody wants to see healthy competition checked, but competition which is not healthy may lead to financial failures which would not be at all good for the young industry of air transport. The Hambling Committee led to a monopoly of subsidies on cross-Channel services when competition was growing unhealthy, but that sort of policy is not likely to be exactly repeated in the case of internal lines.

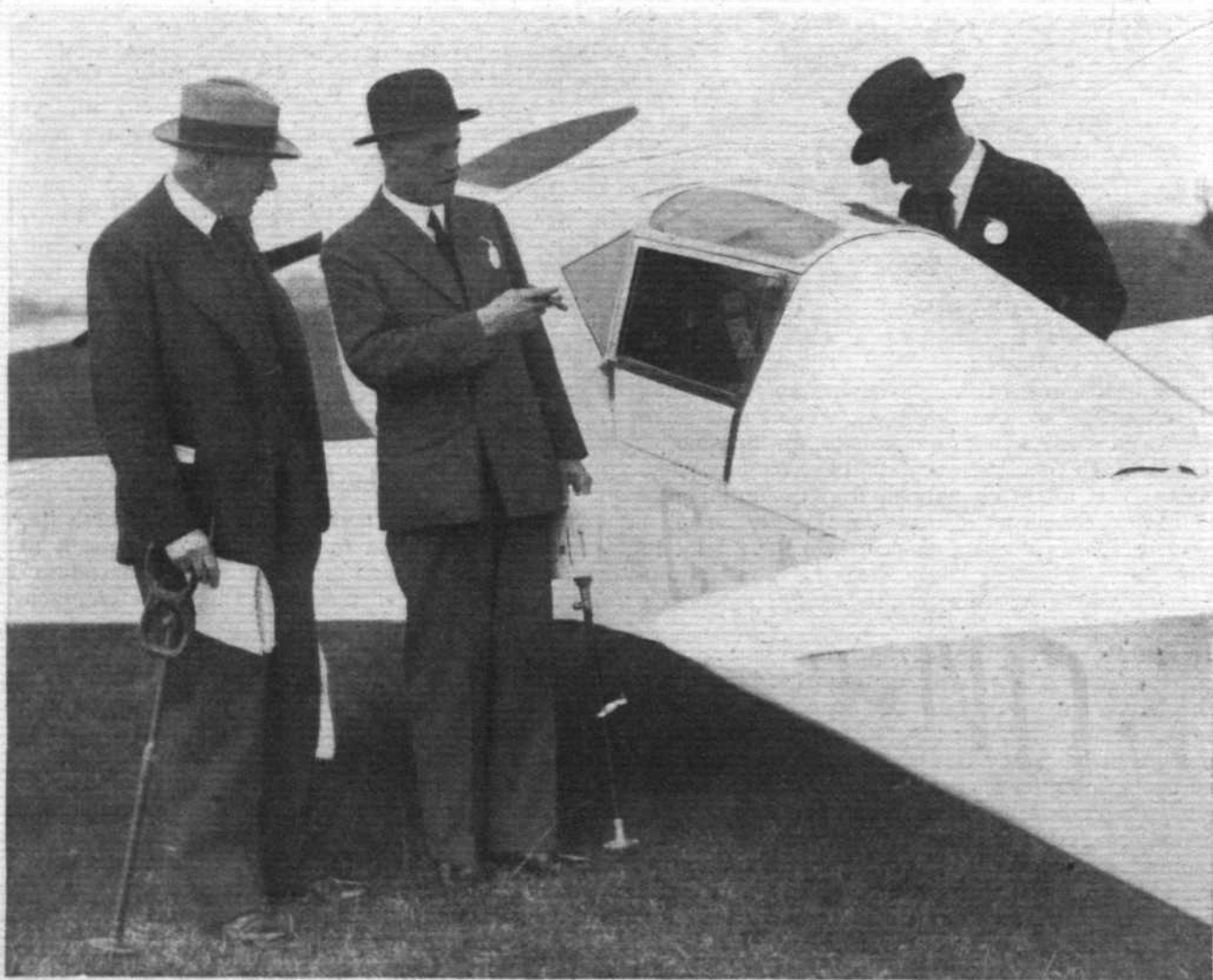
Post Office contracts may take the place of subsidies, where internal air lines seem desirable. It is even suggested in some quarters that certain lines may be licensed, either by the Air Ministry or by some other authority. That would seem a drastic step. On the one hand, a recommendation that a certain line did not seem to be justified by the general scheme of traffic ought to be enough to prevent people from wasting money by flying over it. On the other hand, no good is likely to result if, when a certain route is recommended, mushroom companies start operations in the hope of being bought out by Post Office contractors. The main thing, however, is to draw up an ordered plan of air lines which will probably be useful, and other details can afterwards be arranged.

Widening the Field

THE "Motor cycle of the air" was a term coined during the Lympne light 'plane trials some ten years ago or so. The type has been a long time in coming, and it cannot be said to have been quite achieved yet, but indications are that it is on the way, and that a very valuable step towards it has been made by Mr. Kronfeld with his new Super Drone.

The initial cost is still somewhat high for a single-seater which cruises at 60 m.p.h., but that is partly offset by the fact that it is computed that, on a basis of "writing off" the machine in three years, the all-in operational cost works out at rather less than nine shillings an hour.

On this basis it will be seen that a purchaser of one of these little machines will spend some £225 a year on his flying, or about £5 a week. This is still a good deal more than he would need to spend on a small car, let alone a motor cycle, so that the "Motor cycle of the air" is still something of a figure of speech. It should be remembered, however, that if it is assumed that during the period of three years the owner-pilot has the wind behind him at least as often as he has it against him, he will have covered in his 500 hours' flying some 30,000 miles per annum, or 90,000 during the three-year period chosen as a basis. In other words, his flying will cost him approximately 1½d. per mile at 60 m.p.h.



OFFICIAL INTEREST: The Percival Mew Gull is the first aeroplane to exceed 200 m.p.h. in the King's Cup Air Race. The photograph shows it being examined at Hatfield with obvious interest by Lord Gorell, chairman of the Royal Aero Club, Sir Philip Cunliffe-Lister, Secretary of State for Air, and Lt. Col. Shelmerdine, Director-General of Civil Aviation.

The Outlook

A Running Commentary on Air Topics

Growing Interest

ONE of the great difficulties in connection with the King's Cup Race in previous years has been to frame the regulations in such a way that the technically useful was combined with the spectacular in a manner to attract the general public. It is, therefore, pleasant to be able to record for this year's race a marked increase in attendance. London's John and Jane Citizen have not in the past shown any marked enthusiasm for this air race. This year, however, the attendance at Hatfield was more than double that of last year. It is still small enough in all conscience, but 4,100 paid-for tickets as against 2,000 last year is at least encouraging. It is estimated that, in addition, there were 1,500 non-paying visitors, members of the Royal Aero Club, representatives of the Press, and so forth.

The wisdom of including Northern Ireland in the eliminating course emerges from the fact that something like 3,000 spectators paid for admission at Newtownards. At Hatfield the number of cars in the enclosures was obviously much larger than on previous occasions, and enquiries elicit the information that the actual number was 901 compared with 697 last year.

The sale of official programmes is another barometer by which one may judge. This year's programme was, in the main, good and attractive, although there were mistakes in the engine column of the official entries list, and public interest and desire for information are shown by the fact that out of the 15,000 printed only a few hundred remained unsold. Three hundred were sold on the front at Blackpool alone, although this was only a turning point.

Pointers in the Results

PROGRESS made by competitors in the King's Cup Race in the matter of speeds was quite interesting to follow. Take the fastest lap. Seven pilots made their fastest time on the second lap—that is, the first clear one undelayed by the start. On the other hand, nine worked up to the last lap for their fastest time. Some pilots, notably Mr. F. G. Miles, No. 9, and Capt. Edgar Percival, No. 2, got better and better as they went on, presumably profiting each time they went round.

The consistency of the old hands at the racing game was well marked. On the other hand, especial mention should be made of Mr. Tweddle, the limit man, who, though comparatively a newcomer, never varied more than 0.3 m.p.h. after his first lap.

That Water Crossing

WHEN the details of the eliminating course for the King's Cup Race were first announced, the fact that such a relatively large amount of water had to be crossed was severely criticised. Actually, of course, the crossings were short, but the criticisms were surely justified by the lucky escape of Henshaw and by the equally lucky though far less spectacular escape of Bradbrooke, whose engine partially failed while his machine was flying over the mud and/or water of Morecambe Bay. However, if no competitor had actually put down in the sea the dangerous possibilities might have been overlooked. It would be a pity to leave Ireland out of the race, but the course might be arranged in future so that only the Stranraer crossing is included.

Troop-carriers in Land War

IN the August issue of the *Journal of the Royal United Service Institution*, Major J. T. Godfrey, R.E., p.s.c., has an interesting article in which he suggests a novel use for troop-carrying aeroplanes in a land war. He works out an ingenious plan whereby, after temporary and local command of the air had been established, a small number of troop-carriers, working intensively, could transport a "cell" of ground troops to some objective on the enemy's lines of communication where they would be able to establish themselves for a limited period and during that period absolutely deny to the enemy the use of some important point, such as a railway bridge.

The scheme is only intended for use on special occasions and at places where a suitable landing ground could be found behind the enemy's lines. A great many conditions would have to be fulfilled before the plan became feasible, and the Army's fighter aeroplanes would have to be very much on the *qui vive* to save the troop-carriers from being shot down. Probably the air officers would say that even if this plan were successful, the same results could be obtained by persistent bombing of the same spot. That the Army at present does not possess any troop-carriers, or fighters, or bombers, does not vitiate Major Godfrey's plan, for in time of emergency these could be supplied; though at present there seems no possibility at all of A.D.G.B. being able to supply either fighters or bombers.

The Dearth of Pilots

DURING the past twelve months both the technical and the lay Press have alluded to the present and still more serious future shortage of transport pilots. More than one company is already claiming that all its first pilots have a minimum of a thousand hours' flying experience, yet only three, including Imperial Airways, use any machines in which a second pilot can be accommodated and trained.

The difficulty has, curiously enough, been accentuated since the plans for a number of reserve training schools have been made public. Pilots who might have considered the possibility of making a career for themselves in commercial aviation are attracted now by the considerably higher salaries offered to reserve instructors, and nobody can blame them for taking their instructors' licences and applying for the large number of posts available.

Since, as far as one can gather—no statements of any kind have been issued to the Press—Imperial Airways has ordered or will order a large number of different types for its new programme, this company alone will, in due course, drain the "pilots' pool," and many of the best pilots may gravitate towards Imperials.

Hatfield Organisation

A POINT in connection with the King's Cup Race which many people may have overlooked is the vast organisation which lies behind it—not only as regards the actual event, but also for the benefit of the spectators and others on the aerodrome from which the race is held. Opinions this year were unanimous that this part of the organisation—for which the De Havilland Company should have the credit—could hardly have been bettered. There was a larger crowd than we have seen at this race for a long time, so we hope that the company reaped the just reward of their enterprise.

The Fourteenth KING'S CUP RACE

A Runaway Win for the Miles Falcon (Gipsy Six) Flown by Flt. Lt. T. Rose : Two Days of Racing Demonstrate Wonderful Reliability of Modern Aircraft and Engines

(Illustrated with Flight photographs and sketches)

THE fourteenth annual air race for the cup presented by His Majesty the King, flown last Friday and Saturday, resulted in a decisive victory for a Miles Falcon low-wing cabin monoplane (Gipsy Six engine) entered by Viscountess Wakefield and handled by Flt. Lt. T. Rose, the makers' test pilot. Completing Friday's 953-mile Eliminating Trial at an average speed of 154.5 m.p.h., he won Saturday's handicap Final at an average speed of 176.28 m.p.h., six minutes ahead of the next competitor. His flying time for the 350 miles of the Final was 2h. 3m. 8s., and his best lap of the fifty-mile course was at a speed of 178.206 m.p.h.

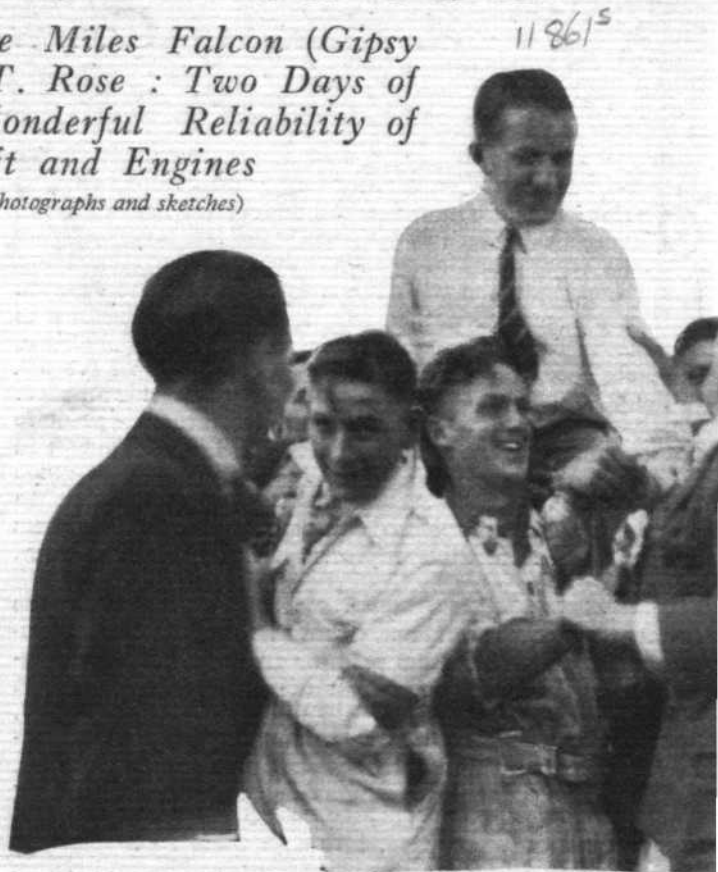
The King's Message

His Majesty the King sent a message of congratulation to Viscountess Wakefield. It was conveyed in the following telegram, received by the secretary of the Royal Aero Club, from Balmoral Castle:—

"Please convey the warm congratulations of the King to Viscountess Wakefield on winning his cup, and also to the pilot."

Second was a Miles Hawk Trainer entered by Mr. R. Cornwall and piloted by Flt. Lt. H. R. A. Edwards, who completed the Final at an average speed of 157.84 m.p.h.

The third machine home was yet another product of the Reading factory of Phillips and Powis (Aircraft), Ltd.—another Hawk Trainer, entered by Major G. W. G. Allen and flown by Mr. O. Cathcart Jones, who,



Flt. Lt. "Tommy" Rose, the winner, chaired by proud colleagues.

having averaged 157.52 m.p.h., finished only 17s. after the second man.

A good fourth was Lord Wakefield's T.K.2 monoplane, built by students of the De Havilland Technical School, and flown by Capt. Hubert Broad. The scratch machine, the Percival Mew Gull entered by H.R.H. the Duke of Kent and flown by Capt. E. W. Percival, finished sixth, having averaged 208.91 m.p.h., and made, as was expected, the fastest lap of the race in 14m. 41s., equivalent to a speed of 211.178 m.p.h.

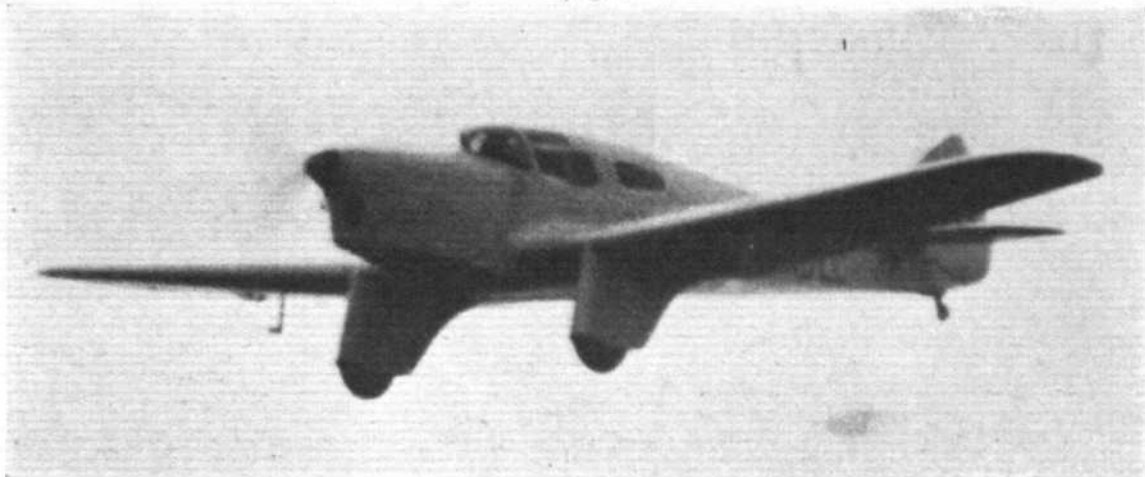
Competitors and spectators were fortunate this year in the matter of weather, clear, bright conditions prevailing on both days. The 953-mile eliminating contest on Friday, which took competitors over England, Scotland and Wales, and touched Northern Ireland, saw six of the twenty-nine starters retire through various causes,



Flt. Lt. Rose receives the King's Cup from the hands of Sir Philip Cunliffe-Lister, Secretary of State for Air.

An outdoor Olympia—a section of the concourse of cars in the main enclosure at Hatfield Aerodrome.





The victorious Miles Falcon (Gipsy Six) snapped as it swooped across the line, winner of the final at 176.28 m.p.h.

while one was excluded through an infringement of the turning-point regulations. Both the two women pilots were unlucky, neither reaching the Final.

Except for a descent into the Irish Sea alongside a conveniently available ship, there were no accidents, while in the Final the standard of mechanical reliability was high, not a single retirement taking place among the twenty starters.

With the exception of the winner's runaway victory, the handicapping by Capt. Dancy

and Mr. Rowarth secured a very close finish in the final, only 2 min. 51 sec. separating the second finisher from the ninth.

Public interest, though again comparatively meagre, showed a distinct improvement as compared with previous King's Cup Races. Especially at the controls and turning-points in Friday's Contest was this so.

THE RESULT

THE KING'S CUP and £500 prize.—Flt. Lt. T. Rose, Miles "Falcon" (Gipsy Six) (entrant, Viscountess Wakefield). Handicap time in final, 2 hr. 32 min. 20 sec. Speed, 176.28 m.p.h.

RUNNER-UP (£200 prize).—Flt. Lt. H. R. Edwards, Miles Hawk Trainer (Gipsy Major) (entrant, Mr. R. Cornwall). Handicap time, 2 hr. 38 min. 51 sec. Speed, 157.84 m.p.h.

THIRD (£100 prize).—Mr. O. Cathcart Jones, Miles Hawk Trainer (Gipsy Major) (entrant, Major G. W. G. Allen). Handicap time, 2 hr. 39 min. 8 sec. Speed, 157.52 m.p.h.

FASTEST LAP.—Capt. E. W. Percival, Percival Mew Gull (Gipsy Six) (entrant, H.R.H. the Duke of Kent). Speed, 211.178 m.p.h.

£50 PRIZE for best performance in Eliminating Contest in Class A (not exceeding 150 h.p.).—Mr. F. G. Miles, Miles Hawk (Gipsy Major) (entrant, Mr. G. A. Hebden). Speed, 163.8 m.p.h.

£50 PRIZE for best performance in Eliminating Contest, Class B (exceeding 150 h.p.).—Mr. C. E. Gardner, Percival Gull (Gipsy Six) (entrant, Mr. Peter Mursell). Speed, 163.2 m.p.h.

(All above cash prizes presented by Lord Wakefield.)

THE SIDDELEY TROPHY for best performance by a club member and private owner.—Mr. G. E. Gardner, in Mr. Peter Mursell's Percival Gull. Speed in Final, 170.08 m.p.h. Placing, 7th.



THE ELIMINATING TRIAL

AS in previous King's Cup Air Races a very great deal depended upon the weather. With speed as the ultimate criterion for the two classes in the eliminating trial, and with a course of nearly a thousand miles to cover over varying country, the feelings of the competitors must have been mixed as they rose at a comparatively unearthly hour last Friday.

Those with slower machines and a flair for course-keeping prayed for bad but not impossible conditions, while those with very fast machines hoped for the kind of hundred-mile visibility, which actually was the condition over most of the course. The problem was made all the more difficult for the faster competitors by the fact that they naturally hoped to be able to nurse their engines a little, and poor visibility in the north, for instance, would have necessitated flying on full throttle over the clear stretches.

Actually, meteorological reports showed that conditions would improve everywhere save in industrial districts, where a haze is more or less eternal. The minimum visibility throughout the day was given as 4,000 yards, and the maximum wind speed as rather less than 20 m.p.h. Judging from the extravagant changes of wind direction at Hatfield during the afternoon, navigation might, under other circumstances, have been troublesome. As it was, one or two experienced pilots arrived at the finishing point from slightly peculiar directions.

Curiously enough, though Friday's race was "free for all," so to speak, the first half-dozen competitors streaked past the line as closely as if they had been most accurately "danciarthed" in a handicap event. The fact was that they were all "foxing" or nursing their



"Leading-in the winner" of the King's Cup is as much a rite as leading in the winner of the Derby.

and, as the take-off was up a small incline, it seemed to be a long time before he was in the air. Other machines followed more or less without incident, though when Capt. Hope—flying Sir Derwent Hall Caine's Leopard Moth, having scratched his Comper—opened his throttle he swung his machine sharply to the right before starting his take-off run in order to line himself up on the first course. This he rather overdid, with the result that he had to fly on a curve back again to the left after pulling up over the service banners and the trees behind them. His sudden swing caused nothing more than some consternation to the people standing close to the wing tip.

Perhaps the most beautifully handled take-off was that of Flt. Lt. H. R. A. Edwards, No. 33, Hawk Major. He lost the minimum of time and gained speed as quickly as possible. When the flag dropped he banked the machine to the right, and lifted it on a curving path in one movement, so that the take-off finished exactly on his course. No. 15, L. Lipton and S. Harris, caused their "interested parties" some concern as they were unable to get their engine running until some two minutes after the flag had dropped, but this ultimately made no difference, as they managed to get home in time to qualify.



Abyssinia? Flt. Lt. Rose snapped only five minutes before the start of the Eliminating Race.



Second home in the Final—R. Cornwall's Miles Hawk Trainer (Gipsy Major), flown by Flt. Lt. H. R. A. Edwards

Third component of the Reading hat-trick—Major Allen's Hawk Trainer (Gipsy Major), piloted by Owen Cathcart Jones.

engines, certain of being in the first ten of their class.

Heavy rain during Thursday night had disturbed many pilots and others who were sleeping lightly with the morrow's cares weighing somewhat heavily upon them. However, the morning dawned clear, and during an early drive to Hatfield what little mist there was cleared away altogether.

The machines were arranged for the start in three rows, the fast machines starting first, so that the racing numbers gave some little indication of their order. There was actually a thirty-second interval between each start.

Capt. Edgar Percival was first away



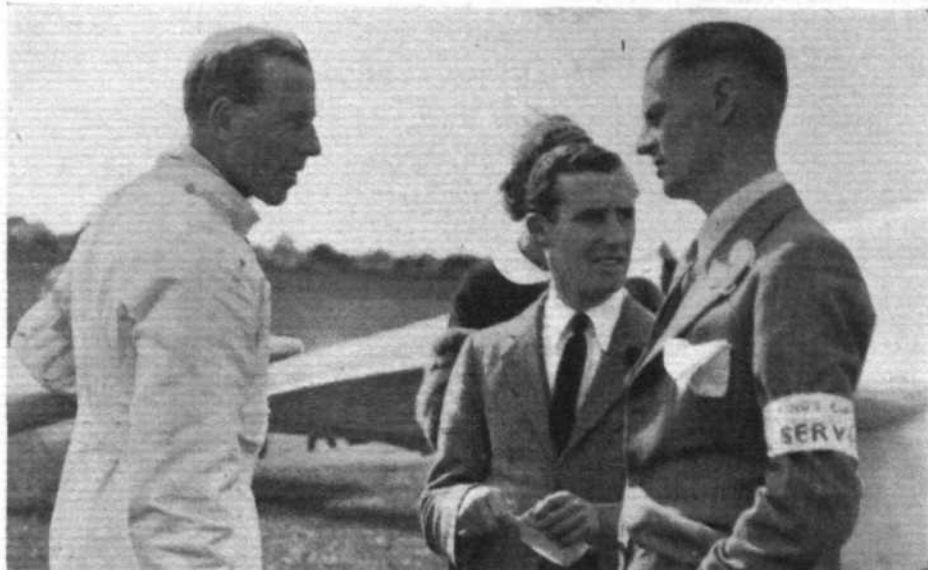
Intense enthusiasm surrounded—literally—the T.K.2 before the take-off. Numerous students from the D.H. Technical School were bent upon polishing the wings and every “hurry-hump”—as they have dubbed the small protruding fairings over otherwise ugly excrescences. Rumour suggested that their efforts with polishing pastes were likely to add more miles to any which the machine was supposed to have in hand over its handicap.

In less than a quarter of an hour all the machines had gone, and the officials and few spectators were left to a hearty though belated breakfast, with the accompanying roar from the first D. H. Hamilton C.P. aircrew for the Gipsy Six engine, which was under test in the wood on the far side of the aerodrome.

Meanwhile, R. O. Shuttleworth had retired his Gipsy III Comper Swift in Bedfordshire with a leaking tank, after taking off with his locker lid expensively unfastened, and put down at his home aerodrome near Biggleswade. L. Fontes forced-landed his Hawk Speed Six near Easington, Durham, and damaged it slightly, while J. Armour had, after passing the turning point, returned to Wool-sington and had retired with the new B.A. Cupid.

First at Renfrew

The Mew Gull was the first to arrive at the Renfrew control, with F. G. Miles some ten minutes behind him. Here, Cathcart Jones was delayed with impulse-starter trouble, and two or three competitors complained that the refuelling arrangements were very slow. Mrs. Battye, incidentally, was delayed some twenty minutes for refuelling at Newcastle. Near Portpatrick A. H. Cook heard a peculiar noise as he was heading for the water, so he turned back and landed in a field. He found that a stub exhaust pipe had burnt through inside the cowl, and a sporting local garage man welded up a new one at top speed while a passing lorry refuelled the machine, and some hundreds of spectators cheered. He got away again in little more than an hour, but just failed to



Flt. Lt. H. R. A. Edwards and O. Cathcart Jones (second and third respectively in Hawk Trainers) chat with C. O. Powis, the maker of their machines.

qualify—which was particularly hard luck, as his machine was well handicapped.

At Newtownards Flt. Lt. E. T. C. Edwards was held up with a broken magneto drive. He had stopped his engine while refuelling because the spinner of his metal aircrew had broken. Spare parts were fitted and the machine was flown back on Saturday by the owner, C. S. Napier, who had flown over in his Hendy 302. Edwards flew this machine back.

The day's excitement, of course, concerned the forced landing made by A. Henshaw on his way across from Newtownards. Apparently the engine of his Hawk Major broke its crankshaft and “threw” the aircrew without causing any other damage. He was cruising very sensibly at 2,000 ft., so he had plenty of time to glide back towards a mail steamer, which he had already passed, while putting the flaps down, undoing his belt and squatting in the seat to do the actual landing. As he hit the water,

stalled, he was shot out over the engine into the sea, whence he swam back to the floating machine, and was soon picked up by the steamer. The Hawk floated for four hours, and was picked up by the *Glen Cree* and taken to Ardrossan.

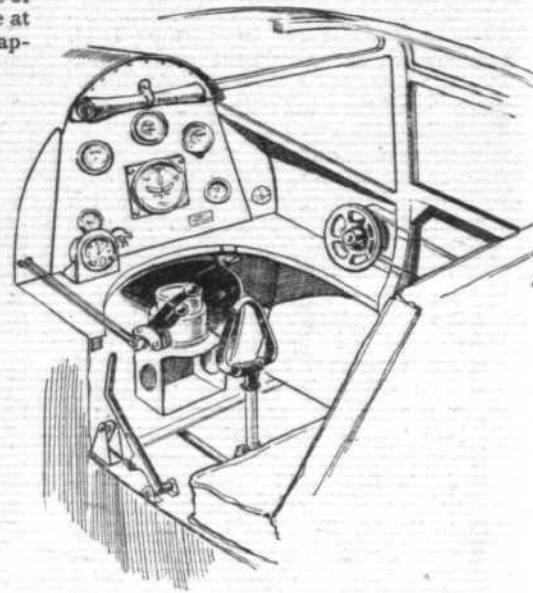
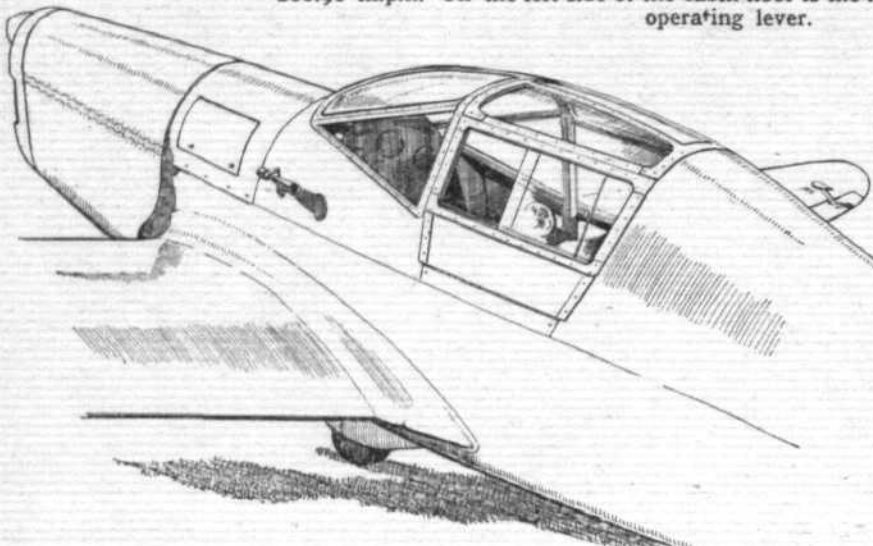
Meanwhile, both C. J. Melrose and Capt. Hope and his passenger, Miss Naismith, saw Henshaw put down and waited about until he was safely picked up. Hope carried on and dropped two message bags improvised from a handkerchief and weighted with money, with the good news. Melrose, after circling, set off in the wrong direction! He had apparently aligned his compass needle the other way round after straightening up, and it was not until he saw Flt. Lt. Wilson's Eagle approaching that he realised his mistake. Both he and Hope fortunately reached the final quite comfortably.

Miss R. Fontes was twice unlucky during the day. After failing to round the Portpatrick turning point—which, competitors admitted, was very difficult



Lined-up on Thursday for verification of aircraft—“to verify that it is an aircraft and not a pram or a tame eagle with G-ARBO painted on its wings” (*vid* programme humorist). The machine in the foreground, incidentally, is the new B.A. Cupid, which must not be confused with Eagles, tame or otherwise.

Exterior and interior views of the cabin of H.R.H. the Duke of Kent's Mew Gull, which Capt. Percival flew into sixth place at 208.91 m.p.h. On the left side of the cabin floor is the flap-operating lever.



to distinguish—she also failed to cross the line properly at the Woodford control. She was, unfortunately, disqualified, but might have made a special flight all the way north again if only nine in her class had completed the course.

For some time after the last man had arrived at Hatfield there was still no news of Bradbrooke since he had left Newtownards. It was known that he had seized up his engine a few days before the race, and some anxiety was felt. However, the news eventually came through to say that he had forced landed near Blackpool. One cylinder had cut out while approaching Fleetwood, and he had just reached the coast. On landing he discovered that a valve in number one cylinder had stuck solid. C. S. Napier, on his way to Newtownards with the Hendy 302, landed alongside, and a United Airways' lorry towed the machine to Stanley Park Aerodrome, the Municipal Airport of Blackpool.

Although the actual finishing order meant practically nothing, there was quite a fair amount of excitement at Hatfield while the first man was awaited.



Capt. W. L. Hope (Leopard Moth) and his passenger, Miss Paddie Naismith, of motoring fame, check-up on a map.

Very few spectators doubted that Percival would appear ahead of Miles, although it was reported that only one minute separated them at the last control, Cardiff.

While some of the more eagle-eyed individuals espied the Mew Gull going by some few miles to the north, Miles brought the Hawk in very low from the right quarter and he crossed the line just as Percival came in from the opposite direction. After flying by watch on a correct compass course he had apparently looked down into the cockpit for a few seconds while passing Watford and had missed Hatfield momentarily in the patches of sunshine and shadow. Although apparently clearly distinguished by the D.H. works, Hatfield is not by any means the easiest aerodrome in the world to discover while travelling fast.

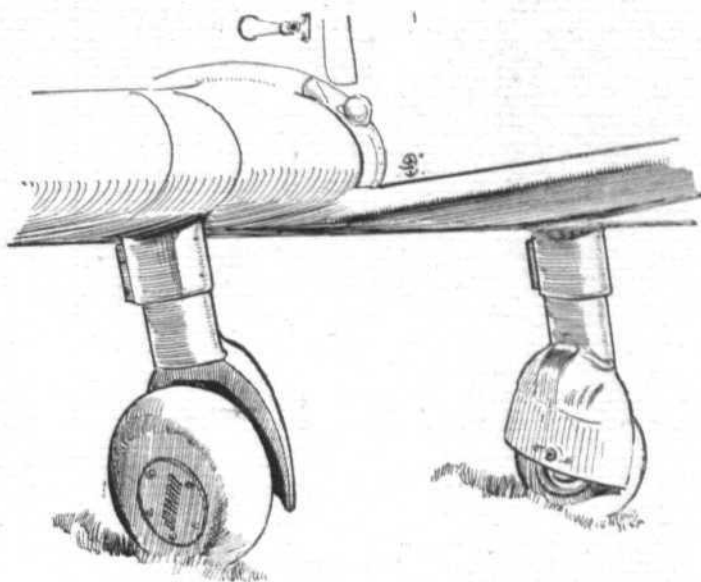
A moment later C. E. Gardner came into sight, and then Morton and Sparkes came in almost together, all three flying Gulls. Both Gardner and Sparkes had on time, beaten the Mew Gull, so that little lapse had cost Capt. Percival the prize for the best time in his eliminating class.

TIMES AND SPEEDS IN ELIMINATING TRIAL.

Racing No.	Class.	Pilot.	Machine and Engins.	Left Hatfield.	Arrived Glasgow.	Arrived Newtownards.	Arrived Woodford.	Arrived Cardiff.	Arrived Hatfield.	Order of Arrival	Gross Flying Time.	Average Speed.
2	B	Percival ...	Mew Gull (Gipsy VI) ...	h. m. s.	h. m.	h. m.	h. m.	h. m.	h. m. s.	2	h. m. s.	m.p.h.
7	B	Miss Fontes ...	Speed Hawk (Gipsy VI R) ...	8 0 0	10 21	10 59	12 17	13 7	13 52 23	8	5 52 23	162.3
6	B	Fontes ...	Speed Hawk (Gipsy VI) ...	8 1 0	10 55	11 34	12 53	13 39	14 15 25	8	Excluded.	—
5	B	Humble ...	Speed Hawk (Gipsy VI) ...	8 1 30	10 29	11 13	12 40	13 33	14 14 46	7	6 12 59	153.3
9	A	Miles ...	Hawk M.5 (Gipsy Major H.C.) ...	8 2 30	10 26	11 8	12 22	13 11	13 51 30	1	5 49 0	163.8
12	B	Morton ...	Gull (Gipsy VI) ...	8 3 30	10 28	11 11	12 25	13 15	13 57 26	5	5 53 56	161.6
11	B	Waller ...	Gull (Gipsy VI) ...	8 4 0	10 35	11 15	12 34	13 24	14 6 14	6	6 2 14	157.9
10	B	Gardner ...	Gull (Gipsy VI) ...	8 4 30	10 29	11 10	12 23	13 13	13 54 57	3	5 50 27	163.2
13	B	Sparkes ...	Gull (Gipsy VI) ...	8 5 0	10 30	11 9	12 25	13 15	13 57 7	4	5 52 7	162.4
16	B	Rose ...	Falcon (Gipsy VI) ...	8 5 35	10 40	11 25	12 42	13 35	14 16 16	9	6 10 9	154.5
15	B	Lipton ...	Falcon (Gipsy VI) ...	8 6 30	10 56	11 37	13 2	14 16	14 59 24	13	6 52 54	138.5
18	A	Broad ...	T.K.2 (Gipsy Major H.C.) ...	8 7 0	10 48	11 28	12 52	13 45	14 28 33	11	6 21 33	149.9
17	B	Roberts ...	S.T.12 (2 Gipsy Major H.C.) ...	8 7 30	11 21	12 6	13 38	14 36	15 23 58	17	7 16 28	131.0
21	A	Shuttleworth ...	Swift (Gipsy III) ...	8 8 0	Retired	with leaking fuel tank at Biggleswade.						
22	A	Cook ...	Hawk Major (Gipsy Major H.C.) ...	8 8 30	10 43	13 6	14 30	15 24	16 7 47	22	7 59 17	119.3
23	A	Bradbrooke ...	Hawk Major (Cirrus Major) ...	8 9 0	11 1	11 49	Forced landing near Blackpool.					
33	A	H. Edwards ...	Hawk Trainer (Gipsy Major) ...	8 9 30	10 42	11 26	12 45	13 38	14 22 13	10	6 12 37	153.5
32	A	Jones ...	Hawk Trainer (Gipsy Major) ...	8 10 0	11 5	11 48	13 14	14 5	14 54 10	12	6 43 50	141.6
28	A	Norman ...	Hawk Major (Gipsy Major) ...	8 10 30	11 13	12 1	13 32	14 32	15 21 33	16	7 11 3	132.7
24	A	Henshaw ...	Hawk Major (Cirrus Major) ...	8 11 0	10 55	11 44	Dropped into sea, picked up by boat, machine salvaged.					
29	A	Mrs. Battye ...	Hawk Major (Gipsy Major) ...	8 11 30	11 31	12 29	14 6	15 10	16 0 40	21	7 49 10	121.9
27	A	Wilson ...	Eagle (Gipsy Major) ...	8 12 30	11 5	11 56	13 24	14 22	15 13 57	15	7 1 22	135.8
25	A	Armour ...	Cupid (Gipsy Major) ...	8 13 0	Retired at Newcastle.							
26	A	E. Edwards ...	Gull (Cirrus Major) ...	8 13 30	10 58	Starter trouble, delayed at Newtownards.						
31	A	Melrose ...	Gull (Gipsy Major) ...	8 14 0	11 8	11 55	13 25	14 23	15 11 58	14	6 57 51	136.8
30	A	Irwin ...	Eagle (Gipsy Major) ...	8 14 30	11 21	12 11	13 50	14 54	15 45 8	18	7 30 23	127.0
35	A	Gardner ...	Leopard Moth (Gipsy Major) ...	8 15 0	11 31	12 20	13 56	14 59	15 51 3	19	7 36 3	125.4
34	A	Hope ...	Leopard Moth (Gipsy Major) ...	8 15 30	11 32	12 21	13 55	4 58	15 53 22	20	7 37 52	124.9
36	B	Tweddle ...	Avian IV (7-cyl. Genet Major) ...	8 16 0	11 40	12 33	14 17	15 26	16 21 7	23	8 5 7	117.9



De-spatted and unpropped—Sir Derwent Hall-Caine's Leopard Moth, flown by Capt. Hope, receives ministrations on Thursday.



Half-spatted—the distinctive undercarriage of the B.A. Cupid. Vibration resulting from a loose airscrew hub caused John Armour to retire at Newcastle.

AT THE GLASGOW CONTROL

AT the Renfrew aerodrome control the Scottish Flying Club were in charge of the arrangements, and also at the Dalbeattie turning point. It was gloriously clear and warm at Renfrew, so for once the Clydeside aerodrome belied its reputation. Mr. Brian R. Millar had been appointed chief marshal by the S.F.C. committee, and right well did he organise things. Preliminary conferences with the oil companies resulted in five portable units, well manned and equipped with long lengths of hose to facilitate refuelling, being laid out. Each was easily selected by a banner overhead. As an indication of the speed with which the machines were filled up, "Bill" Gairdner, flying John Barbour's Leopard, got ahead of Mrs. Battye in landing, refuelled, and again got ahead of her at the take-off, although she had not refuelled.

The S.F.C. committee chairman, Col. Iain M'William was chief control marshal, with Messrs. W. Scott-Brown and

J. W. Robertson as assistants. Their organisation was so complete that no competitor was delayed a second in having his card signed and receiving a weather report for the next "leg" to Newtownards.

The Mew Gull was fully ten minutes ahead of anyone at Renfrew. Capt. Percival seemed in no hurry, and was ready to take off before F. G. Miles landed.

Flt. Lt. George C. Walker was the starter. The maximum hold-up at the starting line was only 32 sec., which was duly credited by wireless. Ten or fifteen seconds delay only resulted in four instances, the hold-ups being due to machines landing. Renfrew is fine so long as the wind is north-easterly or south-westerly (the prevailing wind), but it was north-westerly on Friday, although blowing lightly. Capt. John Houston was wondering if he would have to change the lay-out of the various lanes.

William Humble was the first to cause

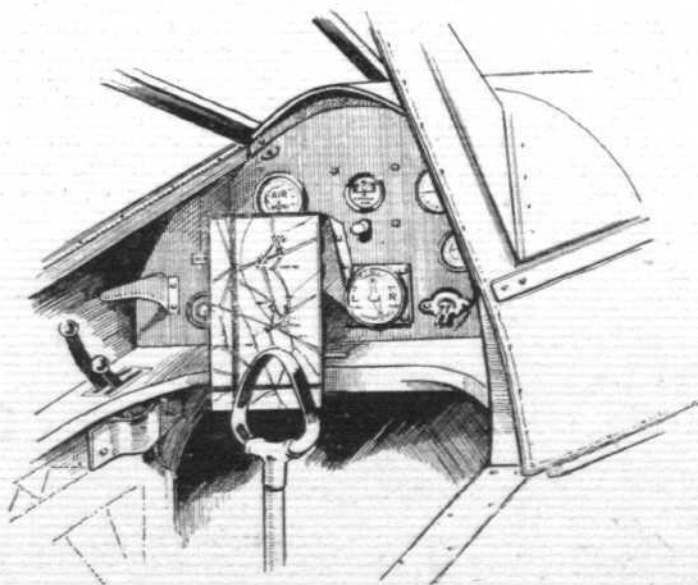
our hearts to miss a beat. He just managed to scrape into the aerodrome with his Hawk's tongue hanging out, so to speak. With its thirst slaked, he taxied up to the control, checked in and shot off soon after. He would have had to land in the Clyde, and was mighty glad to be so luckily let off.

Not only did F. D. Bradbrooke "bag" a seagull with his Hawk, but he insisted on carrying it off with him, embedded in his wing! The S.F.C. report themselves grateful to him for thinning out the unwelcome visitors, but apologise for being unable to fit them with tail lights!

Cathcart Jones was fuming at the pack-up of his impulse starter; he lost fifteen minutes in having his engine hand-started.

THE NEWTOWNARDS CONTROL

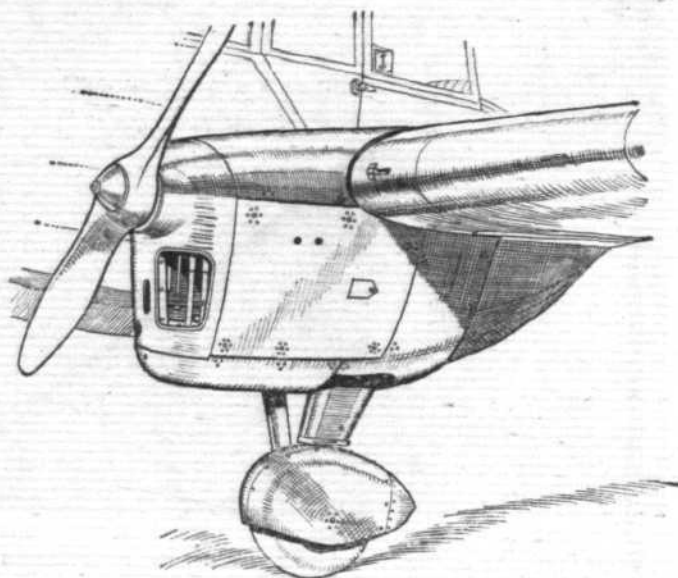
THE first year for Northern Ireland to take part in the King's Cup Race and the first year for the race to cross the Irish Sea. Northern Ireland gave



(Left) C. E. Gardner, in Peter Mursell's Gull, kept his map well under his nose . . . and won the Siddeley Trophy. (Right) The Adventuri, otherwise the super-venturi which Miss Fontes could place in the air-stream to drive blind-flying instruments in the event of her Hawk Speed Six striking bad weather.



O. G. E. Roberts (right), pilot of the Monospar, checks his course calculations before the Eliminating Contest.



One of the Gipsy Major high-compression engines of the Monospar S.T.12, the only twin-motored machine in the race.

the race an Irish reception worthy of such an event.

A large party was at the Newtownards airport clubhouse, including the Marquis and Marchioness of Londonderry and members of his house party, the N. Ireland Prime Minister, Viscount Craigavon and the Viscountess, Comdr. F. P. Armstrong and officials of the R.A.C., with other Northern Ireland Ministers, including the Minister for Commerce, Mr. J. Milne Barbour, whose son, Mr. Jim Barbour, was flying a Leopard Moth in this race.

The morning was not at all promising, rain threatening and a stiff breeze filling the wind-socks. Flt. Lt. Bentley, in a Miles Hawk, gave the spectators a demonstration of the actual procedure of a competitor landing.

At 10.21 a.m. the first machine was



Brother and Sister Fontes, both unlucky enough to be "eliminated" on Friday.

announced as having left Renfrew. At about 10.50 it arrived—the Duke of Kent's Mew Gull. Capt. Percival came in very fast. He pulled up sharply at the control, and left without refuelling in four minutes.

Second to arrive was Gardner's Gull, with F. G. Miles immediately on his tail, Miles going on to refuel and getting away again in five minutes.

Competitors now began to arrive in rapid succession, and the landing area was occupied almost to capacity with the arriving and departing machines.

Later Arrivals

The Gull piloted by Waller came in fast, then made a very wide turn, but left again in 2½ minutes. Tommy Rose left after refuelling in seven minutes, followed by Edwards, who refuelled and was off again in five minutes. Broad was the next to arrive, and left again in three minutes without, of course, refuelling his little T.K.2.

Rain began to fall but was of short duration; then the wind changed direction altogether and eventually died down. Miss Fontes was seen in the distance, and made a wide circle over the ground before turning to land, but after getting the weather report she was off again in three minutes, saying that the slow landing was due to her not being

able to see properly through oil on her screen and goggles.

Henshaw in No. 24, Hawk Major, made a perfect slow landing, and was away again after refuelling in 7½ minutes. Flt. Lt. E. T. C. Edwards landed his Gull across wind, and on arriving at the control removed his cowlings; he was unable to restart his motor, and upon examination discovered a magneto drive had sheared, putting him out of the race.

A Watery "Landing"

It was then announced that Henshaw had "landed" in the sea six miles off the Irish coast, but had been safely picked up, as already reported.

Cathcart Jones had a short chat with Lord Londonderry, and left again in three minutes. The B.A. Eagle flown by Flt. Lt. Wilson was off again after refuelling in 4½ minutes. Melrose, in his Gull, made a very fast landing, but had to take the air again after touching down and make a circuit. Mrs. Battye (Hawk Major) stayed some time at the refuelling point making adjustments, and got off again in eleven minutes, this being the longest stop yet, except for the lame Gull.

During the race the Western Airways and Hillman machines added to the airport traffic, they being on their daily business.



The T.K.2, built by students of the D.H. Technical School, makes a fast and clean take-off in the Final in the hands of Capt. Broad.



A pleasant general impression in Saturday's intermittent sunshine. In the air is the Monospar S.T.12.

AT THE WOODFORD CONTROL

EVER since the Lancashire Aero Club has been in existence it has been noted for the enthusiasm of its members and excellence of arrangements during flying meetings.

Friday was no exception. At 9.30 a.m., forty or fifty members under Mr. Colin Wilson and Mr. G. V. Oddy, were busy pegging out arrows and sticking flags in the ground to mark out the taxiing lines, while Mr. Geoff. Davies, in a silk sports shirt, was riding round on the Macclesfield Fire engine happily ringing the bell.

At first there was a considerable quantity of heavy cloud, but during the morning conditions cleared considerably.

At 12.2 p.m. E. W. Percival passed the line at well over 200 m.p.h. He landed, refuelled, and was away again by 12.16, two minutes before the arrival of F. G. Miles in the Hawk. As usual, Capt. Percival was immaculate in lounge suit, soft hat and gloves. Mr. Miles did not refuel and was off the ground again within five minutes of crossing the tape.

The next four arrivals were Sparkes, Gardner, Waller and Morton, all in Gulls and all within a minute of each other. None of these was on the ground for more than six minutes.

Humble was next at 12.24 p.m. on his Hawk. Although he refuelled and had to change his plugs he was only sixteen minutes from crossing the tape to leaving again. "Tommy" Rose followed. He merely taxied round the aerodrome smiling and waving to all his old friends, and was away. While he was doing this Miss Fontes cruised round and landed. Unfortunately she had missed the arrows and had to take off and do another circuit before re-filling.

The T.K.2 Arrives

Broad arrived on the T.K.2 at 12.41, and it appeared that his machine did not like the ground, as he made a second circuit before landing.

Lipton, on the Falcon, was next, closely followed by Jones (Hawk), and Wilson in the Eagle.

About this time it was rumoured that Henshaw had forced-landed in the Irish Sea. Rumour had it that he had managed to swim to Blackpool and was spending the rest of the day on the Big Dipper to get a thrill out of life.

At 1.32 p.m. Melrose decided that things were quiet at Woodford, and that the control car was to land on and not to stop at. However, after chasing a wing-tip marshal for twenty yards he



F. G. Miles, who, in G. A. Hebden's Hawk M.5, made fastest time in the Eliminating Trial, clocking 163.8 m.p.h.

pulled up with squeaking brakes about twenty feet from the aforesaid car.

After filling up with petrol and oil, O. G. E. Roberts (Monospar S.T.12) seemed a little out of patience when his starboard engine exhibited a certain sluggishness in starting, but, eventually, he got away all right.

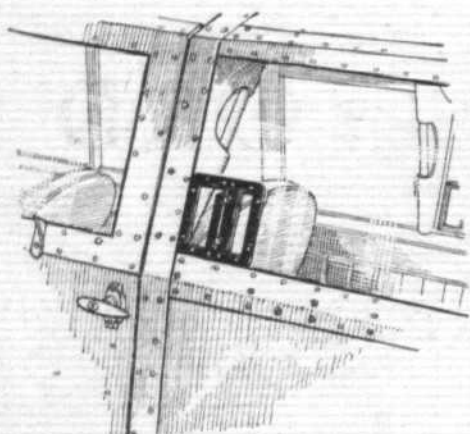
When Angus Irwin (B.A. Eagle) came in, he and his passenger called loudly for coffee—and got it; then busied themselves with pieces of wire with which they lashed a loose exhaust manifold in place. Irwin, apparently, did not mind losing the exhaust pipe, but he seemed a little apprehensive as to whether it would hit the tail of his plane if and when it fell away.



The Face at the Window is that of Capt. E. W. Percival (and why shouldn't one wear a respectable hat in a 215 m.p.h. aeroplane?)



First away on Friday—the speedy Mew Gull; but on Saturday Capt. Percival had the arduous honour of starting last.



A neat ventilator built into one of the cabin windows of the Monospar.

The last two to come in were A. H. Tweddle in the Avian, and he did his best to wipe up the line of flags marking the "lane" to the filling stations, and A. H. Cook (Miles Hawk Major) who appeared out of a piece of sky that nobody else had thought of using.

This ended the race as far as Woodford was concerned.

The re-fuelling arrangements were all that could be desired. About 40 gallons were put into one machine in just over one minute, including removing and replacing the filler caps—wonderfully snappy work.

AT THE CARDIFF CONTROL

CARDIFF'S first participation in a national aviation event was an unqualified success, and to signalise the occasion a large crowd of spectators turned up, together with many civic dignitaries. From the official point of view Cardiff treats its aviation functions seriously, and there is a real retention of interest amongst those responsible for the Corporation airport. The weather is usually kind to Cardiff's displays, and Friday was no exception, visibility being excellent and conditions all that even the poorest navigator could have desired.

Edgar Percival was, as expected, the first arrival at 12 hr. 59 min. 33 sec., his approach and landing providing the crowd with a real thrill. He, like most of the competitors, wasted no time in getting away, refuelling not being necessary.

The next machine in was rather a surprise in view of the handicap times—

Miles' beautiful sleek Hawk, showing a fine turn of speed, and arriving only seven minutes after Percival at 1 hr. 6 min. 57 sec. Then a flock of Gulls—Gardner, Sparkes, Morton, and



C. J. Melrose, the Australian enthusiast, with his mother. His Leopard Moth finished twelfth in the Final.

Waller. Morton actually arrived within 45 seconds of Sparkes, but, by means of a spectacular cross-wind take-off and sharp turn, gained some minutes on his rival. Then more Hawks—Humble, on

the first Gipsy Six Hawk, lately the property of Sir Charles Rose, Tommy Rose in the Falcon, which appeared to be moving extremely well, Miss Fontes, and H. R. A. Edwards. The vertical turn executed by the last-named in the middle of the aerodrome caused quite a gasp, and even the broadcasting ceased during his landing, which was cleverly carried out with a wing tip in the grass. Hubert Broad arrived soon after in the T.K.2.

The flow of arrivals proceeded in accordance with the telephoned departures from Woodford, and probably every competitor will agree the control worked smoothly. The aerodrome had been extended, primarily for the reception of the Comet, but L. Lipton was still not satisfied, and went round a second time—a wise decision. Miss Battye also adopted this procedure, and, in common with some other competitors, doubtless thinks brakes are a useful adjunct to aeroplanes. No. 34 (Capt. Hope in Sir Derwent Hall-Caine's Leopard Moth) caused some wonderment, as he was last seen heading S.E. towards Bridgwater, most of the other competitors having proceeded somewhat north of Bristol.

A Word of Praise

A word of praise must be given to the organisation, which was very well done, and reflected great credit on the hard-working officials, headed by Capt. W. R. Bailey and Mr. Charles Keen as chief marshals. Particular mention should be made of the official commentator—Mr. S. Kenneth Davies, enthusiastic owner of a flapped Hawk—if only because of



The line-up for the Final, with the only biplane, A. H. Tweddle's Avian (Armstrong-Siddeley Genet), in the foreground. Although fairly new to the racing game, Tweddle's flying was remarkably consistent in both Friday's and Saturday's races.



Toeing the line on Friday. In the foreground, on the left, is Diana Mary Williams' Percival Gull, piloted by T. W. Morton; on the right is A. C. W. Norman's Miles Hawk.

his classic remark to describe a perimeter; the machines were taxi-ing round the edge of the aerodrome from the control to take-off, and his definition of this abstract measurement (after several shots at it) was "a thing that goes round and round and round."

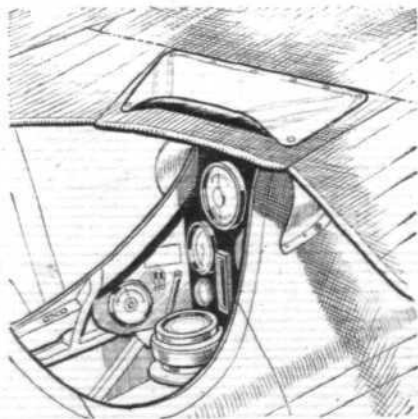
As a matter of interest, at the conclusion of the event no fewer than twelve new members joined the Cardiff Aeroplane Club—which shows the amount of good propaganda spread by a well-organised race of this kind.

THE FINAL

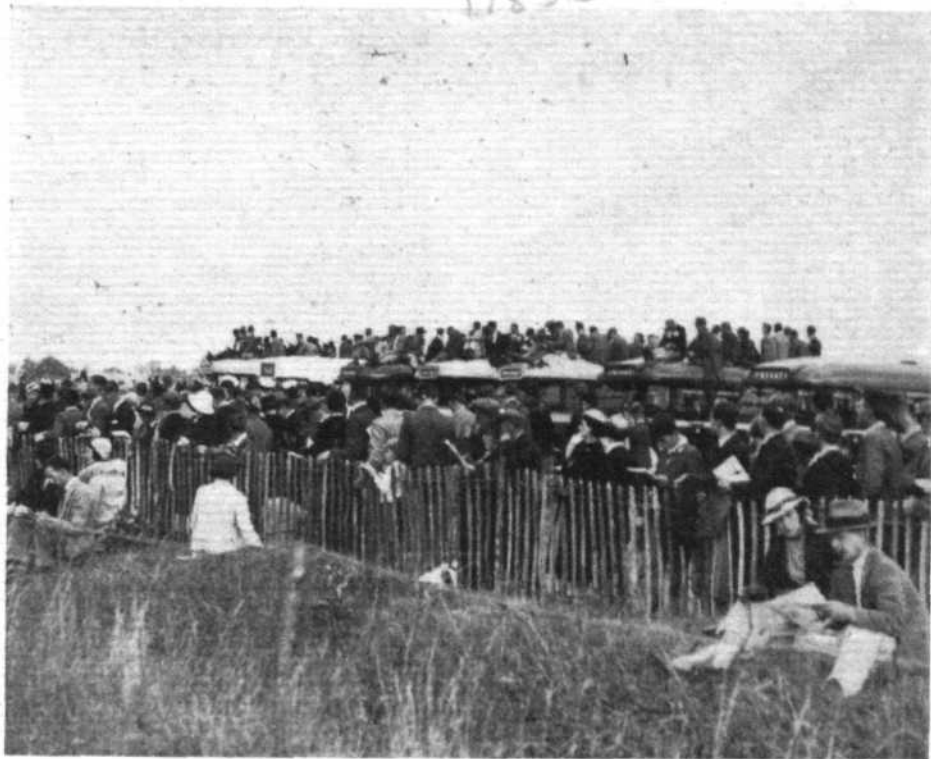
SATURDAY'S Final was flown over seven laps of a triangular course of just under fifty miles, from Hatfield eastward to Broxbourne Aerodrome, round a turn of about 45 deg. included angle, north-west to the R.A.F. station at Henlow, Beds, where the turn was of about 30 degs., and thence back to Hatfield for a milder turn (about 105 deg.). There could not have been a finer setting for a great sporting event than Hatfield Aerodrome. On Saturday afternoon, for the Final, the enclosures were gay with bright clothes and glittering cars, and the dignified white buildings made fitting background.

Assuming that the majority of those in the Club and more expensive enclosures were spectators of the "friends and relatives" and otherwise interested type, one looked to the cheaper enclosure on the far side of the aerodrome to gauge the degree of ordinary public interest, and, as is usual with the King's Cup race, this seemed disappointing, though obviously better than in some past years. The number was swollen by a couple of hundred vociferous enthusiasts wearing red-and-cream rosettes, and their cheers as each of the Reading products left the line identified them as Phillips and Powis employees; they had come *en masse* in motor coaches to watch the justification of their handiwork—and what a justification it was destined to be!

What the "bob" spectators lacked in broadcast information (there was only one loudspeaker, not too well placed, in this enclosure) they gained by having a near view of the starting-line, and some of the take-offs were spectacular enough to satisfy everybody in any enclosure.



Tempering the wind—a deflector noticed on a Comper Swift.



There was quite a fair crowd in the shilling enclosure—but room for more. In—and on—the motor coaches are some of the 200 Phillips and Powis supporters.

The full twenty competitors passed on from the eliminating race were starters. At the limit end was A. H. Tweddle in the only biplane, the Avro Avian, and he was sent away by Mr. George Reynolds 56 min. 20 sec. ahead of the scratch machine, the white Mew Gull entered by H.R.H. the Duke of York and piloted by Capt. E. W. Percival.

Twenty-five Years

Mr. Reynolds, incidentally—imperturbable as ever, and armed as usual with flag board, watches, and beret—was completing a quarter of a century of starting and timing aeroplane races, for, to within a few weeks, this was the twenty-fifth anniversary of the first flying meeting at which he officiated—the Bournemouth meeting of 1910, at which C. S. Rolls met his death.

Competitors took off with various degrees of *élan*, some gaining twenty or thirty feet of height before beginning to turn to the right on to their course, and

others holding down and brushing the daisies with a well-banked wing tip. Nos. 33 and 32, Flt. Lt. Edwards and Cathcart Jones in Hawk Trainers, left together, the latter being particularly emotioning in the matter of getting on his course in the shortest possible time.

The T.K.2, in the hands of Capt. Broad, made a remarkably snappy getaway. C. E. Gardner, in one of the Gulls, brought excited exclamations from onlookers by putting one wing tip well down while one wheel was still on the ground.

About twenty-three minutes after the start Tweddle appeared on the end of his first lap, making a neat, low turn about the cross laid out on the aerodrome. There was a long gap, then Capt. Hope, in Sir Derwent Hall-Caine's Leopard Moth, made his turn a little way ahead of Barbour's and Gairdner's Leopard Moth, which had started from the same mark—7 min. 58 sec. after the Avian. Angus Irwin, in Gandar Dower's B.A. Eagle, was the fourth to

Can't face, but some s rings are missing



Much in little, and quickly, too—one of the T.B. refuelling units supplying the Mew Gull.



John Fox's Eagle, flown by Flt. Lt. J. B. Wilson, passing over the aerodrome at Hatfield.

arrive, and thereafter competitors came in a steady stream. One or two had already picked up a place, but the only one who had helped himself to a really big slice was Flt. Lt. Tommy Rose in the Miles Falcon. In this very first circuit he had jumped from thirteenth to tenth. The announcement, a few minutes later, that his lap speed had been 171½ m.p.h. confirmed the general opinion that, barring fire, flood, earthquake, or other unforeseen contingencies, the winner had already emerged.

A hawk (of the small "h" variety) unconsciously caused a lot of amusement in the 58. enclosure by his cry of "Fruit and chocolates!" which, distorted as only a hawk can distort, sounded exactly like "Good old Tommy."

Nearing 200 m.p.h.

When the Mew Gull had snarled by at the end of its first lap, the speed was announced as 198 m.p.h., and slide-rule merchants set to work on computing the odds against Percival catching Rose; but, even thus early, it seemed an unlikely eventuality with the Falcon flying a cool 20 m.p.h. or so over its handicap speed. Rose's second lap was at 178 m.p.h.

Tweddle completed his third lap (at 125½ m.p.h., exactly the same speed as the previous one) uncaught, and with Hope in the Leopard Moth still behind him. C. J. Melrose, in his Percival Gull, had picked up two places with a good lap at about 145 m.p.h. The position of the first six at the end of the third lap was:—

1. A. H. Tweddle (Avro Avian).
2. Capt. W. L. Hope (D.H. Leopard Moth).
3. C. J. Melrose (Percival Gull).
4. J. Barbour and W. Gairdner (D.H. Leopard Moth).
5. Angus Irwin (B.A. Eagle).
6. Flt. Lt. J. B. Wilson (B.A. Eagle).

Lap 4 saw the two long-start leaders still uncaught, but things were definitely just about to happen. Right on their tails came a whole string of machines, one after another shooting into sight over the trees on the north boundary. At the head of the howling pack was Rose's Falcon—starting thirteenth and now in third place after only four of the seven laps had been completed, and just about to gobble up the two remaining items of the opposition!

Rose had just passed Melrose, and behind the latter came the two Hawk trainers of Jones and Edwards, which, starting off the same mark, had taken up an apparently indivisible Siamese-twin partnership a few hundred yards apart, lapping in the region of 158 m.p.h. Wilson's Eagle lay immediately behind them, but the most serious threat at the moment seemed to come from the T.K.2, although it still had three others to overtake before it could catch them.

The extraordinary consistency of nearly all the competitors was most marked. By way of example, at the end of the third lap the first seven pilots had all repeated their speeds on the previous lap to within 1 m.p.h. Most people, too, kept to a very consistent method of approach and turning. The majority favoured a comparatively gentle turn at a fairly high altitude. According to the rules, a height of 400 ft. or over had to be maintained until the back-markers had also taken off, but when the first hour had elapsed, and everyone was in the air, very few changes of altitude were made. Tweddle on the Avian kept lower than most, but it was the Gull flown by T. W. Morton and, on some laps, the Hawk Trainer flown by Flt. Lt. Edwards which came nearest to giving the crowd their money's worth in the matter of close-up views.

On the fifth lap Tommy Rose was comfortably in the lead—13th to 1st in five laps! His speed for this lap was 175½ m.p.h. On this circuit perhaps the most notable change was a jump of no fewer than five places by the T.K.2. Positions at the end of this lap (the fifth) were:—

1. Flt. Lt. T. Rose (Miles Falcon).
2. O. Cathcart Jones (Miles Hawk Trainer).
3. Flt. Lt. H. R. A. Edwards (Miles Hawk Trainer).
4. C. J. Melrose (Percival Gull).
5. Capt. H. S. Broad (T.K.2).
6. Capt. W. L. Hope (D.H. Leopard Moth).

Edwards and Jones were still keeping up their Siamese-twin progress, though on the next lap (the sixth) they changed

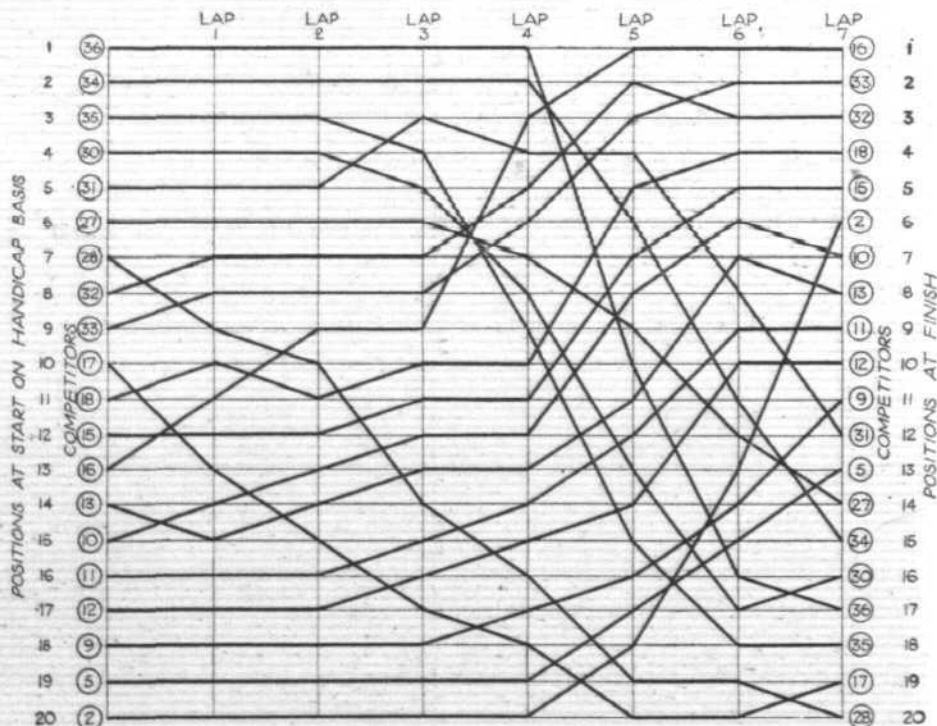
places. On this lap, too, Broad came into fourth place. Lipton and Harris in the latter's Falcon, lay fifth. A whole flock of Gulls followed—Gardner, Sparkes, Melrose, Waller and Morton, in that order. Capt. Hope (Leopard Moth) was eleventh, and H.R.H. the Duke of Kent's Mew Gull lay twelfth, obviously about to pounce on the lesser Gulls ahead. Capt. Percival's lap times were amazingly consistent—no fewer than four consecutive circuits had been covered at 211 m.p.h. to the same second of timing!

With one lap to go, and Rose starting it with the Hatfield sky to himself, the race was over bar the shouting. The slide-rule kings said it was a physical and mechanical impossibility for Percival to catch Rose.

Well done, Tommy!

And it was so. Seventeen minutes later the cream Falcon div'd across the line to the accompaniment of a concerted bellow from hundreds of car horns. As a finish, of course, it was a little tame, for there was a wait of 6 min. 38 sec. before the next man home. But there was a grand little scrap for places. Edwards sailed in with R. Cornwall's Hawk Trainer, and half a mile or so behind him came the other Hawk Trainer of the Siamese partnership, Major Allen's, Carthcart Jones piloting. But only a couple of hundred yards behind streaked a yellow monoplane with pillar-like "feet"—the T.K.2, going like a scalded cat and threatening the Phillips and Powis 1, 2, 3.

It brought the crowd on tiptoe with excitement; but the Hawk dived over the line uncaught, and Reading's triumph was complete. Lipton and Harris were a good fifth with their Falcon, and sixth was the Mew Gull, Capt. Percival having put up a wonderfully fast and consistent show from scratch. Seventh came C. E. Gardner,



The Final at a glance: This graph shows clearly competitors' progress from lap to lap. Racing numbers will be found in the table on p. 276.

in Peter Mursell's Percival Gull, and thus won for Redhill the Siddeley Trophy for the best performance by a machine which is the *bona fide* property of a member of an aero club. Other placings, and the final times, are shown in the table on page 276.

Sir Philip Cunliffe-Lister, Secretary of State for Air, who had been an interested spectator throughout the afternoon, then presented the prizes to the successful pilots, heartily congratulating Flt. Lt. Tommy Rose on his fine win.

The Reading employees, fairly bursting with pride and delight, were not forgotten. Tommy Rose, having had the cup filled to the brim with some eminently suitable beverage, took it over to them and passed it round.

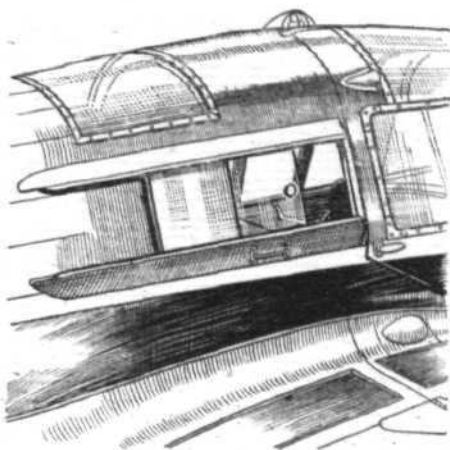
Thus finished a race in which every starter had finished—7,000 miles flying in one afternoon, and nothing even resembling trouble had come to worry a single competitor.

AT THE BROXBOURNE TURN

A FULL, but not too fulsome, description of the control-wrestling at the first turning point might aptly have been headed "Beanfeasting at Broxbourne." While the pilots—or some of them—shot in between the trees on the west side of the aerodrome, shied at the vista of glasshouses on the east side of the aerodrome, and skated off over the north side of the aerodrome, numerous people disported themselves on sideshows of different and amusing kinds.

There must have been two thousand people (at sixpence a time) on the aerodrome, while the Herts and Essex Club worked nobly without being in the least officious. So nobody can say that air racing is not popular as a spectacle for the multitude.

Certainly they obtained their money's worth. At least ten of the twenty competitors flew below the treetops and a few made the devastating kind of turns which are so delightful to watch and, perhaps, so ruinous to speed. On every lap some of the pilots were sufficiently well bunched with fast machines to send the grown-ups running out on to the aerodrome and the children screaming back to their mothers. On the very first lap two Gulls—one of them was Morton's—



A neat sliding rear window in E. L. Gandar Dower's Eagle (pilot, Angus Irwin).

made the turn absolutely cabin to wheels, the lower pilot jockeying his machine as he watched the upper one a couple of dozen feet away, his eyes on skyhooks.

Unfortunately, the enclosures were on the outside of the turn and it was often impossible to distinguish numbers and to read registration marks quickly enough to cope with an influx of competitors. When, for instance, on the fourth lap, no fewer than five machines blotted out the horizon in one mighty roar of speed, spectators merely had a vague idea that they were numbers 34, 32, 36, 33 and X—and the control, separated from the wireless wagon at the turn, could do little to help. However, the announcer was busy with the job of enticing people to the sideshows with creditable witticisms.

The great excitement concerned the arrival of the Mew Gull after nearly everyone, ignorant of the starting times, had given Capt. Percival up. Rough—very rough—timing gave his speeds on successive laps at 222.2 recurring and 215 m.p.h. High speeds, but not as optimistically high as we imagined at the time.

From the racing point of view the best turns appeared to be those made by Capt. Percival, Flt. Lt. Rose—as one might expect—Capt. Broad and F. G.

Miles; the prettiest by Flt. Lt. Wilson, H. R. A. Edwards and C. J. Melrose; and the most spectacular by T. W. Morton, A. H. Tweddle and L. Lipton. But each one varied slightly on each lap and comparisons are more than odious. Only one pilot arrived from an entirely wrong direction, and that, curiously enough, was on the last lap after so much practice. To the north-west Barbour's Leopard Moth could be seen hurrying along the skyline, and it was not until the machine was almost level with Broxbourne that it turned towards the aerodrome.

HENLOW TURNING POINT

OF the three turns on the final course, the one at Henlow was by far the sharpest, being to all intents and purposes a "hairpin."

On the stretch from Broxbourne competitors met a moderate breeze, and in consequence had the wind to their advantage along the Henlow-Hatfield leg.

Arrangements for judging, timing and signalling were in the hands of the R.A.F. Group Capt. James McCrae, the C.O. of the Home Aircraft Depot, was at the turning point, although the actual decision whether a machine failed to clear the mark or was guilty of "cutting-in" on a turn rested with Sqn. Ldr. C. F. Toogood, the station adjutant.

The turning point was a large white canvas cross laid out on the aerodrome, a scoring box of the station cricket team, the group of officials, and a pair of cars leaving little doubt as to its location.

Machines approached from beyond the Arlesey chimneys—that is, all except Wilson (Eagle), who on the first lap seemed to come from Biggleswade, giving rise to the opinion that he had been held up by the traffic lights in the market square, for he was one of those who showed preference for the "hedging and ditching" technique. As already mentioned, Cathcart Jones and Edwards on their Hawk Trainers kept up a commendable imitation of the heavenly twins throughout the afternoon. Edwards' cornering was certainly among the finest of the day. It was low and tight; in fact Edwards appeared to have discovered that "optimum" turn which seemed to elude so many.

Toward the end of the race Cathcart Jones made a mighty effort to gain on



(Left) Peter Mursell's Gull (Gipsy Six), flown by Gardner, of the Redhill Club, into seventh place. (Right) Gardner receives the Siddeley Trophy—for the best performance by a private-owner club-member—from Sir Philip Cunliffe-Lister.

Edwards round the turn. When he had almost reached the cross it was obvious that, if he held his course, he would be disqualified. But he saw his error in the nick of time, and, seemingly, in a split second, took off bank and rudder so that he rounded the mark with his fuselage over the centre of the cross. The rule was that, so long as a machine did not put its fuselage over the cross, it should not be disqualified.

The Mew Gull was generally flying at what seemed to be about 500ft., and, although Capt. Percival seemed to take his mount round in a wider sweep than did the pilots of some of the other "B" class machines, he probably lost less time than one may have thought. He was a model of consistency.

The Gull pilots, excepting Melrose, came round low and sharply, probably in some cases rather too sharply. Gardner was very consistent. Morton's passenger apparently was desirous of reading the timekeeper's stop watch.

Broad (one feels guilty of taking up space unnecessarily in saying so) was just about perfect, although he did seem a trifle slow at times.

The Falcon of Tommy Rose kept high throughout. One some of the turns it was impossible to read the number on the Falcon's tail. Lipton and Harris's machine (another Falcon), however, kept rather lower.

Tweddle took his elderly Avian round in great style. It certainly seemed that this, the only biplane in the race, was capable of a smaller turning circle than most of the monoplanes.

SUCCESSFUL EQUIPMENT

The equipment of the first three machines in the King's Cup Race was as follows:—

De Havilland Gipsy Six engine, Fairey metal airscrew, K.L.G. plugs, B.T.H. magnetos, Claudel-Hobson carburetter, Weyburn camshaft, Titanine dope, Rumbold upholstery, Smith's instruments, Sestrel compass, Reid and Sigrist turn indicator, Palmer tyres, Bendix brakes, Bamberger spruce and Saro plywood supplied by Laminated Wood Products figured in construction. Fuel was National Benzole Mixture, and the oil Wakefield Patent Castrol,



except in the case of Cathcart Jones, who used Anglo-American fuel and oil.

SIDELIGHTS

The neatly uniformed programme-sellers were members of the Civil Aviation Service Corps.

The broadcasting at Hatfield was excellent and the very best use was made of the manner in which the machines changed places.

In the Final, A. H. Tweddle's Avian completed the second fifty-mile lap several minutes before the scratch machine, the Percival Mew Gull, had taken off.

Flt. Lt. Wilson's Eagle had a large sorbo pad on the cabin roof over his head—he is a tall man as pilots go!—and Irwin's Eagle was fitted with large sliding windows at the rear of the cabin.

Mr. D. A. Adkins, of De Havillands, in his rôle of Press steward, was kept busy by a horde of newspapermen. Their only requirement he was unable to supply was a nice sticky accident.

There were only two seats in Napier's Gull, which was flown by Edwards. A large

Almost to the week, this was the twenty-fifth anniversary of "Georgie" Reynolds' first appearance as a starter and timekeeper at aeronautical events. We were about to add: "May his stop-watches never stop."

oval tank holding thirty gallons of fuel filled the starboard side of the cabin. Melrose's Gull, on the other hand, had its cabin completely stripped.

S. W. Sparkes' Gipsy Six Gull had all the courses of the eliminating circuit written in yellow paint on the window at his side. This machine was fitted with a Hughes climb indicator. Three machines at least—Bradbrooke's Hawk Major, Melrose's Gull and Tweddle's Avian—were fitted with Reid and Sigrist Gyroscopes.

The new B.A. Cupid, which was seen in public for the first time on Thursday at Hatfield, has a number of interesting little features. The centrally mounted control column is, for instance, curved rather like an oversize walking stick in order to give the pilot knee-room, and the throttle and altitude controls are mounted on the lower edge of the dashboard. This is certainly neat but one wonders whether the movements of the flexibly mounted dashboard will make throttle setting difficult. The oil is cooled by air passing in through the leading edge of the port wing root, through the tank itself and out through the starboard wing root.

FINAL PLACINGS AND INDIVIDUAL LAP TIMES.

Place	Race Number and Pilot	Machine and Engine	Starting Time	Lap Speeds (m.p.h.)							Finishing Time	Speed over Whole Course
				1	2	3	4	5	6	7		
1	16. Flt. Lt. T. Rose	Miles Falcon (Gipsy Six)	29 12	171.5	178.0	177.2	178.2	175.6	176.2	177.4	2 32 20	176.2
2	33. Flt. Lt. H. R. Edwards	Miles Hawk Trainer (Gipsy Major)	21 20	153.7	157.5	157.7	159.0	158.2	160.8	158.9	2 38 51	157.4
3	32. O. Cathcart Jones	Miles Hawk Trainer (Gipsy Major)	21 20	153.9	159.2	158.2	157.8	158.3	158.2	157.5	2 39 8	157.5
4	18. Capt. H. S. Broad	T.K.2 (Gipsy Major)	28 19	163.0	166.3	166.3	166.6	166.3	166.0	165.5	2 39 10	165.8
5	15. L. Lipton, S. Harris	Miles Falcon (Gipsy Six)	29 12	163.9	167.6	167.6	167.5	167.5	167.5	166.9	2 39 16	166.8
6	2. Capt. E. W. Percival	Percival Mew Gull (Gipsy Six)	56 20	198.0	210.0	211.1	211.1	211.1	211.1	211.2	2 40 14	208.9
7	10. C. E. Gardner	Percival Gull (Gipsy Six)	32 38	166.8	171.2	170.9	170.5	170.7	170.3	170.2	2 40 15	170.0
8	13. S. W. Sparkes	Percival Gull (Gipsy Six)	32 38	165.9	169.9	169.8	169.1	169.2	169.1	168.5	2 41 14	168.7
9	11. K. F. H. Waller	Percival Gull (Gipsy Six)	32 38	163.9	169.1	169.1	169.1	168.6	168.6	168.6	2 41 42	168.1
10	12. T. W. Morton	Percival Gull (Gipsy Six)	33 2	163.9	167.6	167.5	167.5	167.2	167.6	166.9	2 43 7	166.8
11	9. F. G. Miles	Miles Hawk M.5 (Gipsy Major H.C.)	37 50	169.1	171.6	172.7	173.0	173.0	173.7	174.0	2 43 45	172.3
12	31. C. J. Melrose	Percival Gull (Gipsy Major)	13 35	138.8	145.2	145.1	144.5	144.5	145.2	145.2	2 44 21	143.9
13	5. W. Humble	Miles Hawk Speed Six (Gipsy Six)	43 22	173.5	178.3	178.7	178.3	178.5	178.7	178.9	2 45 27	177.7
14	27. Flt. Lt. J. B. Wilson	B.A. Eagle (Gipsy Major)	15 12	138.7	145.0	144.7	144.2	140.5	143.3	144.6	2 46 58	143.0
15	34. Capt. W. L. Hope	D.H. Leopard Moth (Gipsy Major)	7 58	132.8	136.4	136.7	136.5	137.0	137.0	137.2	2 39 21	136.2
16	30. Angus Irwin	B.A. Eagle (Gipsy Major)	10 16	131.0	135.0	135.1	134.6	135.1	135.6	135.7	2 51 33	134.5
17	36. A. H. Tweddle	Avro Avian (Genet Major)	0 0	123.9	125.5	125.5	125.5	125.8	125.7	125.8	2 53 18	125.2
18	35. J. Barbour, W. Gardner	D.H. Leopard Moth (Gipsy Major)	7 58	128.7	130.6	131.2	131.7	132.0	130.8	131.5	2 53 47	130.9
19	17. O. G. E. Roberts	Monospar S.T.12 (2 Gipsy Major H.C.)	26 31	141.6	145.0	146.1	145.8	146.3	146.7	146.8	2 55 46	145.4
20	28. A. C. W. Norman	Miles Hawk Major (Gipsy Major)	20 20	133.6	139.8	139.7	140.1	140.0	140.4	140.8	2 56 13	139.2

The fastest lap of the day is indicated in dark type.

R.A.F. UNITS VISITED

*Heyfords at
Boscombe Down*

No. 10
(BOMBER)
SQUADRON

By

MAJOR F. A. de V.
ROBERTSON, V.D.

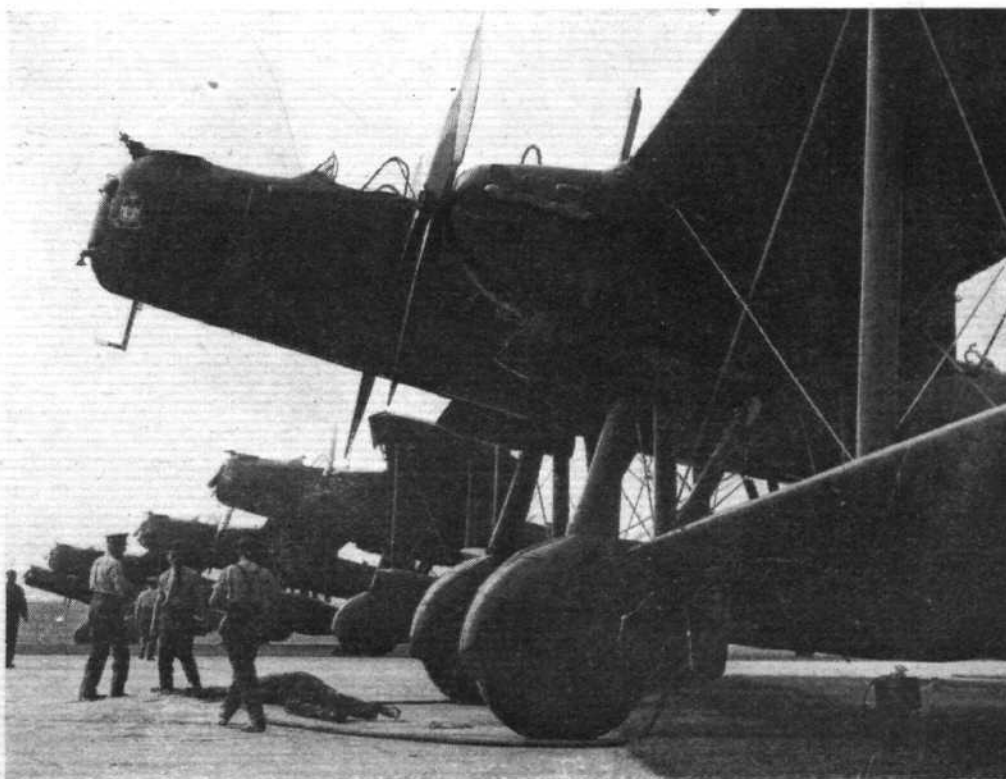


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HEAVY bombers we call them now; they used to be known as night bombers, and therefore they are painted a sort of dark khaki and the white ring is omitted from the national markings on wings and fuselage. In the beams of a searchlight, however, they show up white as snow, despite the dark paint.

It was the Air Exercises of 1930 which first showed the authorities that the term night bombers did not describe all the possibilities of the Vickers Virginias which were then the main examples of the class. On those Exercises the northern belligerents' country was hedged round by imaginary mountain ranges, broken here and there by gaps or passes. There was one such gap at Sealand, but the defenders thought it too remote to call for special defence; whereupon Sir John Steel, who then commanded the Wessex Bombing Area, sent two squadrons of Virginias by day up the West of England and through the Sealand gap to bomb the hostile cities of the North. The move came quite as a surprise, and caught the defenders unprepared. Thenceforth the possibility of using heavy bombers for long raids by day was recognised, and quite recently all bombers have been classified as "light," "medium," and "heavy."

The old Virginia took a lot of displacing. In its day it was a very good type, and it

Some of the Handley Page Heyfords (Rolls-Royce Kestrels) of No. 10 (Bomber) Squadron.
(Flight photograph.)



continued in use long after its performance had been regarded as belonging to an age that is past. More speed and greater range are now needed, and a heavier bomb load is also considered desirable. After much consideration the Air Ministry decided

upon the Handley Page Heyford with two Rolls-Royce Kestrel engines as a replacement type. First No. 99 (Bomber) Squadron was re-equipped with this type, and the second squadron to receive it was No. 10 B.S.

The Heyford has already been described in *Flight*, and our photographs in this article show its general appearance. In brief, its main features are that the fuselage is attached to the upper planes instead of to the lower ones as in most biplanes, that a rotating gun cockpit can be lowered beneath the fuselage to protect blind spots which might be attacked from below, and that the bombs are hidden in the under part of the centre section of the lower wings, and faired off by hinged trapdoors, thus presenting no resistance to the air. It is driven by two fully supercharged Kestrel V engines of 600 h.p. With the former Kestrel III engines the Heyford would do up to 130 m.p.h. at 13,000 feet, so an improved performance can be looked for with the new engines. The

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range is reckoned at 920 miles, and the disposable load is 2,722 lb., allowing 1,600 lb. of bombs for the full range or more at short range. The pilot is seated 19½ feet above the bottom of the wheels, so that practice is needed in order to make a good landing. The pilots of No. 10 B.S. report that the Heyford is a very nice machine to fly, and is very easy to maintain. It has no tricks or vices.

A Very Keen Squadron

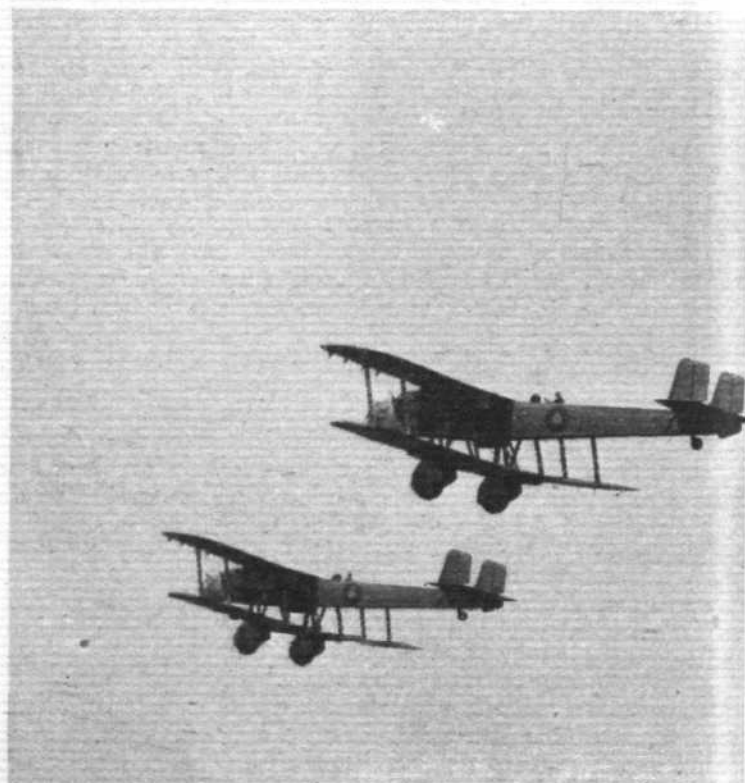
No. 10 B.S. shares with No. 9 B.S. (a Virginia squadron which hopes some day to receive Hendons) the aerodrome of Boscombe Down just outside Amesbury on Salisbury Plain. All stations on the Plain have a family resemblance to one another, and there is nothing much which can be said about any of them. They give an impression of wide open spaces and rather more fresh air than most other aerodromes can boast, though fresh air is a distinguishing mark of all aerodromes, and it usually seems to be travelling at one with considerable rapidity. No. 10 B.S., however, has plenty of individuality. Officers and men are undoubtedly a very keen bunch of mortals. Last year the squadron won the Long Distance Cup for heavy bomber squadrons. The conditions of this competition are that a squadron must make at least twenty trips of six hours each by night round the country, and must bomb on one of the ranges during each trip. Marks are given for navigation and accuracy of bombing. Machines are sent out singly on the trips. Of course, each squadron probably makes many more trips, perhaps forty, but submits the twenty best for the competition. It is a very fine competition, and a good test of the efficiency of a heavy bomber squadron. The trips in this competition usually start about June or July, as in the early part of the year the squadron is busy training its pilots in its own special work. Pilots are not trained on twin-engined machines at the Flying Training Schools or at Cranwell.

The other great enthusiasm of No. 10 B.S. is Association football—in the vulgar tongue, Soccer. This season sixty-four teams entered for the R.A.F. Junior Cup, which is competed for by units with a strength of under 200. The finalists were the two Boscombe Down squadrons, Nos. 9 and 10 B.S., a very unique event. The match took place on March 20, and was watched by a large crowd, including A.V.-M. Playfair, A.O.C. Western Area. No. 10 B.S. rejoices in two members of the R.A.F. Soccer XI, L.A/C Hamlet and A/C.1 Maycock. The latter scored two goals in the first half, which won the Cup for No. 10 B.S. L.A/C. Hamlet has been picked for the combined Army, Navy, and Air Force

Soccer team which is shortly going for a four months' tour in South Africa. It is perhaps needless to add that the present Commanding Officer, Wing Cdr. M. B. Frew, D.S.O., M.C., A.F.C., is himself a Soccer enthusiast.

Medal ribbons are once more becoming a rarity, except among senior officers, and the lads from Sealand and Grantham probably think "1914 and all that" the most boring of topics. Still, elder men can never meet one of the R.A.F. squadrons without wondering what were its fortunes in the great war. Here is a brief epitome of the doings of No. 10 Squadron.

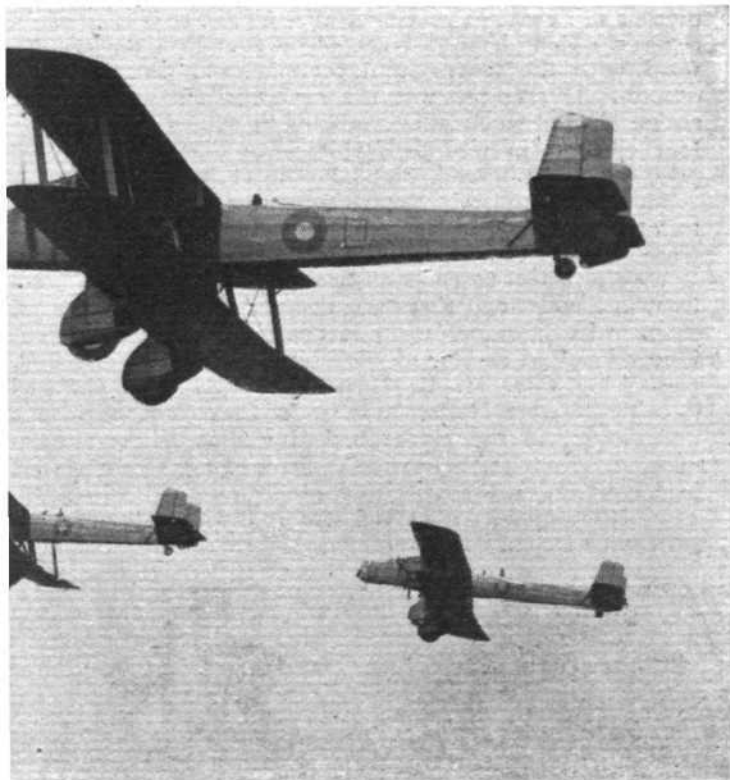
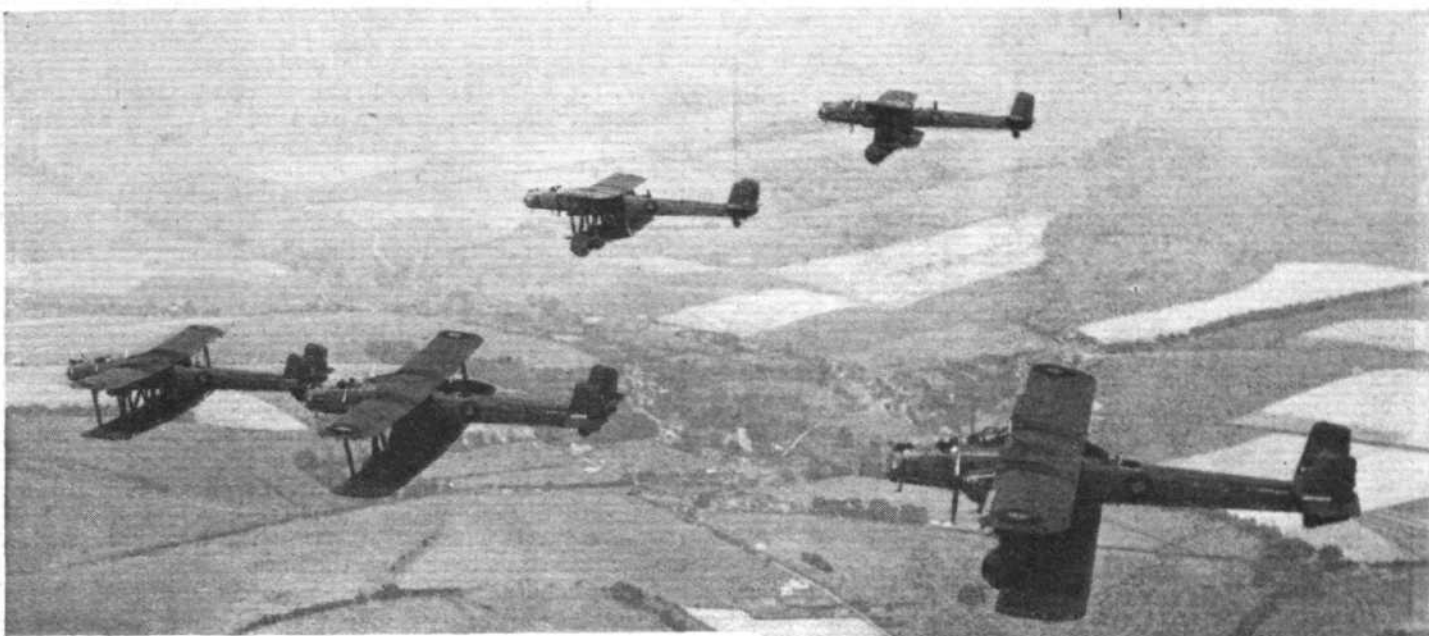
By the end of 1914 General Henderson had realised that many more squadrons would be needed for the work of the then small army in France, the Old Contemptibles, and had sent his requisitions home. Steps were taken at once, and, among others, No. 10 Squadron was formed at Farnborough on January 1, 1915. It was an off-shoot of No. 1 Reserve Squadron, and its first C.O. was Maj. G. S. Shephard, but he soon gave over the command to Maj. (afterwards Group Captain) U. J. D. Bourke. The squadron speedily moved to Brooklands and then to Hounslow, and again to Netheravon, where it replaced its original heterogeneous collection of aeroplanes with a complete outfit of B.E.2.C.s. In July it went overseas to France, and was stationed at Chocques aerodrome, about three



On the left is shown the Shelvoke & Drewry engine-driven tail-wheel trolley, for moving machines about on the ground. In the centre and on the right are two views of a flight of Heyfords in formation.

(Flight photographs.)

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miles west of Bethune. There it commenced regular reconnaissance work for the 1st Army. Several fights took place, and in one Capt. C. Gordon-Bell drove an enemy aircraft down to the ground.

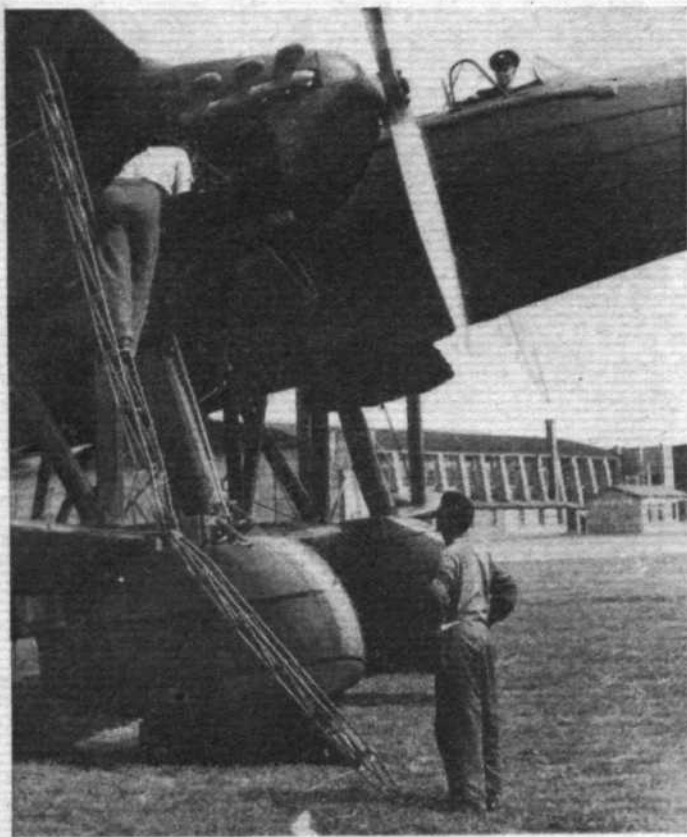
The battle of Loos started on September 25, 1915, and No. 10 provided one flight for strategical reconnaissance, while two flights observed for the artillery of the Indian Corps. In the autumn the Fokker monoplane began to take its toll of British reconnaissance machines, and the B.E.s were certainly not able to fight it on equal terms. In October Lt. Lloyd Williams, of No. 10, was out on a photographic flight with Lt. W. Hallam as observer, when a Fokker attacked them. Hallam was hit in the hand, and could not use his gun. Then Lloyd Williams was wounded by the gun of the Fokker and lost consciousness. The machine went out of control, so Hallam climbed forward between the two back struts and seized the joystick, but the B.E. did not respond. He tried the throttle, but also without effect. The Fokker's bullets

had done a lot of damage. Then he shut off the petrol, and the machine became controllable once more, and Hallam succeeded in landing it behind a French trench. Both officers were treated in a French dressing station.

With the re-organisation of the R.F.C. into Brigades, No. 10 became a Corps squadron, working with the XI Army Corps, which in modern parlance means an army co-operation squadron. In June, 1916, Maj. Bourke gave over the command to Maj. (now A.V.-M. and A.O.C. Iraq) W. G. S. Mitchell, and about the same time the establishment of the squadron was raised from twelve to eighteen machines. The Somme battles started in July, 1916, but No. 12 was not engaged in the Somme area. It remained at Chocques with the XI Corps, but was kept very busy bombing the area round Lens, Douai, Cambrai, and Valenciennes. On one occasion it did great damage to Douai railway station. In these operations its escort was often provided by No. 25 Squadron, now equipped with Furies and stationed at Hawkinge. Twice during October, 1916, its bombing formations and escort were attacked by enemy fighters. On the first occasion nine enemy aircraft made the attack, but two were shot down without loss to the British. Two days later six Rolands fell upon the bombers and their escort, but three of them were destroyed, again without British loss. Before the end of the year Maj. G. B. Ward, M.C., took over command of the squadron.

In 1917 the battles of Arras raged from April 9 to May 5, and No. 10 Squadron was kept busy with all varieties of Corps work, artillery observation, reconnaissance, photography, etc. The squadron also sent one flight of six B.E.2.C.s to R.F.C. Headquarters for special bombing raids by night. Night flying was a new development, and foreshadowed the present main occupation of the squadron. In July of that year the squadron was re-equipped with Armstrong-Whitworths with 160 h.p. Beardmore engines, a type which it retained until the end of the war.

In September, 1917, Second Lt. A. H. C. A. Rawson (afterwards famous as a pilot of Autogiros) did a good piece of work by dropping six forty-pound phosphorus bombs on support and second line trenches, causing three fires. He then fired 300 rounds from his machine gun into troops



Attention to an engine. The ladders are very light and handy, and are carried on board. (*Flight* photograph.)

and transport on the La Bassée-Gravelines road. This was one incident of the new play of ground-straafing which the squadron had undertaken with the advent of the new machines. Shortly afterwards Capt. R. N. G. Atkinson with 2/A.M. Watson as observer saw an outburst of shelling which seemed to indicate an enemy attack. He dived at machine-gun posts until his Vickers gun jammed, and then passed his ammunition back to his observer, who attacked the German trenches very effectively with his Lewis gun.

Before the end of the month the squadron lost its C.O. Maj. Ward was a very gallant officer, and in a fight with three enemy fighters his A.-W. was so shot about that

it crashed on landing and the Major was killed. Maj. K. D. P. Murray was then appointed C.O. Another gallant and tragic incident took place in November. Second Lt. K. Le G. Mills had just taken off on a bomb raid when his A.-W. hit a tree on the boundary of the aerodrome and crashed. The pilot was pinned in his seat, and three officers, Capt. R. E. Saul (now a Wing Cdr. and holder of the D.F.C.), Lt. R. S. Mackenzie and Second Lt. A. G. Pointing rushed to his rescue. The petrol caught fire, but they dragged him clear.

On November 17, 1917, the squadron moved north to Abeele aerodrome, and began to work with the II Anzac Corps, bombing around the Menin area. Early in 1918 the squadron received two Bristol Fighters with W/T receiving sets, which were used very effectively for long-range shoots. In April the Germans began to advance in Flanders, and No. 10 had to fall back to Droglandt aerodrome. They were kept very busy straffing the enemy round Wytschaete. On August 8 another observer, Lt. Goodwin, distinguished himself. His pilot was killed in a fight with a Pfalz fighter, and the observer worked the rudder controls with his hands, in the back cockpit, and flew the machine back from the lines.

In September, 1918, came the Allied counter-attack, and the Germans were driven back east of Ypres. The squadron co-operated with the XIX Corps in the advance. One unusual task which it undertook was to drop baskets of pigeons to advanced parties of infantry, so that they could report to their headquarters. The squadron moved forward with the troops, and occupied old German aerodromes. During the war the squadron lost in killed in action, died of wounds, and missing presumed dead, thirty-four officers; in wounded, thirty-five officers and men; prisoners and interned, six; killed in accidents, eleven.

After the Armistice No. 10 Squadron was moved back to Menin and then to Reckem. In January, 1919, the aeroplanes were given up and the squadron reduced to cadre. It then returned to England, was stationed at Ford Junction, in Sussex, and there was disbanded on December 31, 1919. In January, 1928, it commenced to re-form at Upper Heyford as No. 10 (Bombing) Squadron. Its C.O. was Wing Cdr. H. R. Busteed, O.B.E., A.F.C., and its aircraft were Hyderabad. In December, 1930, the replacement of the Hyderabads by Hinaidis was commenced. In 1933 these were exchanged for Virginias, but in August, 1934, the first Heyford was received. In April, 1931, the squadron moved from Upper Heyford to Boscombe Down.



Officers and Airmen pilots of No. 10 (Bomber) Squadron. Names, l. to r. : standing, P/O T. R. Manson, F/O R. H. Page, P/O R. A. Charles-Auckland, F/O C. H. Mallinson, P/O D. P. Hanafin, Sqn. Ldr. A. S. Ellerton, O.B.E., Flt. Lt. P. Slocombe, Wing Cmdr. M. B. Frew, D.S.O., M.C., A.F.C., F/O R. G. E. Catt, Flt. Lt. J. M. Glaisher, D.F.C., Flt. Lt. A. J. L. Hughes, F/O E. C. Harding, F/O J. P. Selby, P/O J. Duncan, P/O E. A. Verdon-Roe. Seated, Sgt. Pilots B. F. Tuff, H. J. Rose, W. A. J. Kirkham, T. H. Martin, N. E. M. Giles, E. McDermot and J. E. Arnold. (*Flight* photograph.)

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS



AN INTERNATIONAL AFFAIR. The scene at Littorio (Rome) Aerodrome, Italy, at the start of the recent International meeting for a flight round Italy. The first lap was to Naples. A Miles Falcon is in the foreground.

A Change from Service Craft

When Mr. Ramsay MacDonald returned to London from Lossiemouth last week he was piloted by Sir Derwent Hall-Caine, M.P., in the D.H. Leopard Moth which Sir Derwent entered for the King's Cup Race.

Even Better

It has already been stated in *Flight* that over 150 m.p.h. may be expected from the Supermarine Stranraer with 820 h.p. Pegasus X's. Actually it is now understood this fine craft does 153 m.p.h. with Pegasus III's (690 h.p.), so the installation of X's should result in something truly remarkable.

Twenty-five Years Ago

(From "*Flight*" of September 10, 1910.)

"At the extremities of the main planes of the Curtiss Biplane, situated midway in the gap, are balancing planes. The control of these members is effected by wires attached to a lever that forms the back of the pilot's seat, and the pilot controls their movements by leaning his body to one side or the other. In order to rebalance the machine he leans towards the rising side."

Fresh Laurels

M. Jean Mermoz has flown one of the French Comets from Le Bourget to Algiers in 4 hr. 5 min., averaging 206 m.p.h.

Death of Lieut. Col. Caldwell

Flight regrets to record the death, on September 1, of Lieut. Col. Wilfrid Caldwell, director and general manager of the Irvin Air Chute Company.

Death of a Fokker Director

Jonkheer Sandberg, a director of the Fokker company, was killed last week when a product of his company crashed during a demonstration.

Delmotte Keeps It Up

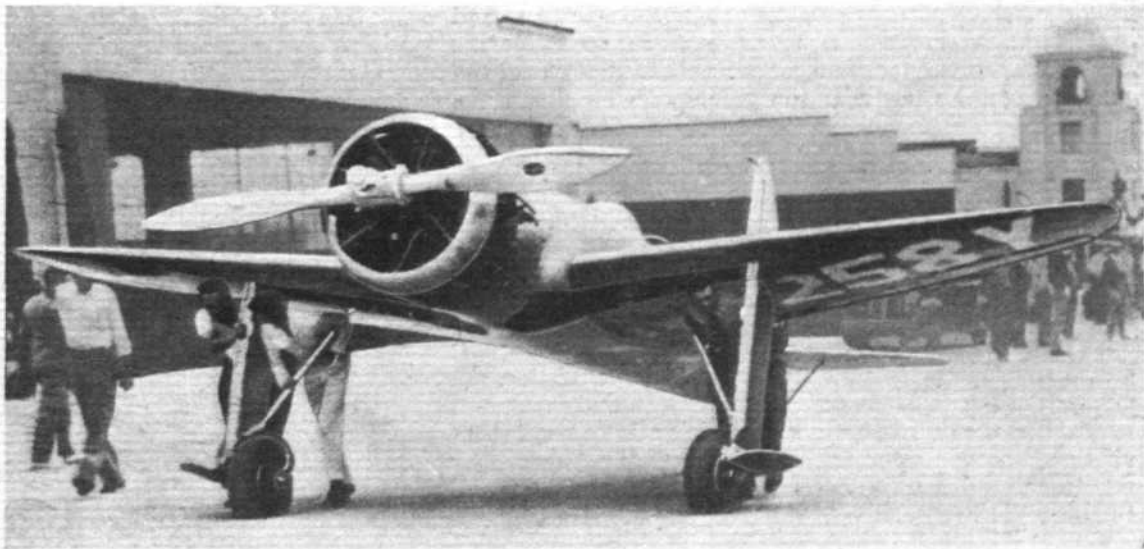
The insatiable M. Delmotte has set up a new 1,000 km. record, covering that distance in his Renault-engined Caudron at 279.86 m.p.h.

L.Z.129

L.Z.129, the new Zeppelin, is not expected to be ready for launching until the end of November, which means that the first flight to New York will not be made until the New Year.

Gay Youngsters

In the United States there is a group of pilots known as the "Over-Fifty Club." It is composed entirely of licensed pilots who have passed their fiftieth birthday. The oldest member is seventy-eight years of age and is still flying his own machine in grand style.



A "MOVIE" MONOPLANE. This is the new racing machine built (by an unknown manufacturer) for Mr. Howard Hughes, the American film director. It will attack the landplane speed record. The engine appears to be a two-row Pratt and Whitney or Wright. The arrangement of the retractable undercarriage is interesting.

Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in the list.

Sept. 14. Cinque Ports Club. Folkestone Aero Trophy Race.

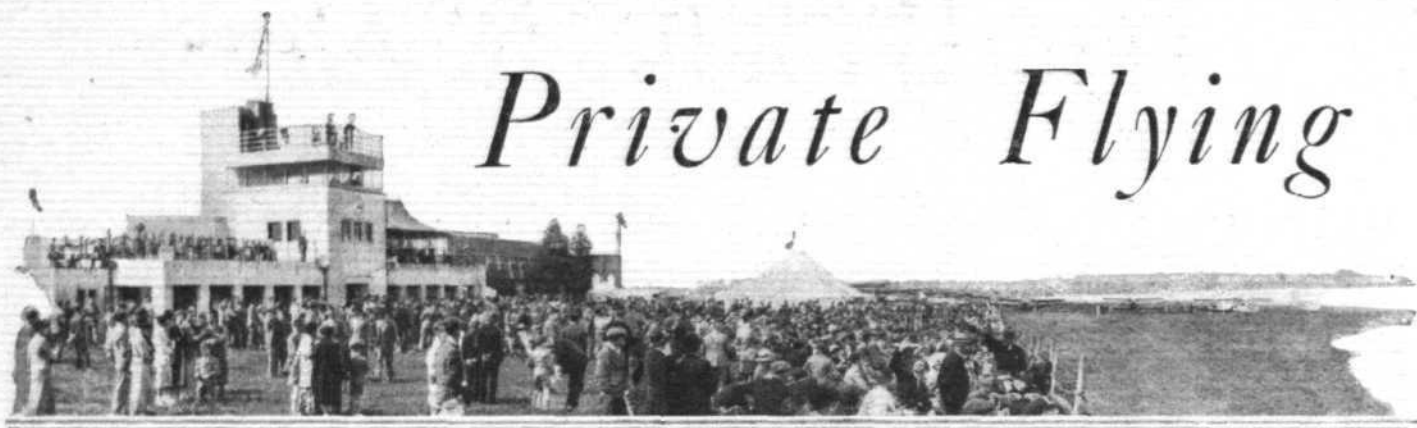
Sept. 15. Gordon Bennett Balloon Race, Warsaw.

Sept. 21. London-Cardiff Race. Cardiff Aeroplane Club.

Sept. 28. Round the Isle of Wight Air Race and Portsmouth Air Trophy.

Oct. 12-28. International Aircraft Exhibition, Milan.

Nov. 29. Yorkshire Aeroplane Club. Annual Ball, Hotel Majestic, Harrogate.



Private Flying

Topics of the Day

Drift Allowance

BEFORE one's early cross-country flights it is right and proper that a course should be worked out with extravagant care, and, left to himself, the novice often wonders how he may guess the strength and direction of the wind.

Although experience teaches a pilot to gauge the velocity with reasonably useful accuracy from the shape of a swinging and billowing wind-sock, much depends on its position in relation to various obstructions in the way of hangars and trees. The ever-useful *Manual of Air Pilots*, in its appendix, however, explains the general effects of winds of different strengths. Needless to say, the speed is nearly always higher at cruising altitude and the direction is often slightly different—and occasionally it is entirely different.

A friend of mine has an ingenious, if somewhat painstaking, method of estimating the exact direction of the wind. He walks to the leeward side of the sock—in other words, he stands with the wind blowing in his face—and then, with a small compass, he takes the magnetic bearing of the sock. This gives him, of course, the exact magnetic direction of the wind near the ground.

Into Wind

ONCE upon a time a very experienced pilot explained to me his ingenious method of getting dead into wind during the last quarter-mile of an approach. Other people have been inclined to laugh at the idea, which, nevertheless, should be useful at least to pilots of machines with very low landing speeds—slight drift, of course, becoming more serious in indirect proportion to the landing speed.

Those people who have studied the effect of "homing" by radio direction finder or to a transmitting station will know that the machine eventually, if no allowance is made, arrives at the transmitter flying into wind after making a curved approach. In place of the radio transmitter this pilot uses a tree or other firm landmark at the end of his roughly gauged approach path, keeping the nose of his machine against this mark. Naturally enough, the machine, so to speak, "weathercocks" around this target. As the slight drift carries it sideways relative to the ground, the machine will, if given time, take up a position facing directly into wind.

Most novices learn to take off and to land towards some easily distinguished object, so that the method is, to some extent, being carried out quite automatically.

Weather Reports

DURING the few weeks immediately following the break in the spell of perfect weather there were quite a number of bad weather forced landings in various parts of the country. In some cases, of course, the pilots—one of them was flying on a regular air service—were forced down by exceptionally heavy rain before reaching their objec-

tives, but I often wonder whether amateurs treat the business of obtaining up-to-date weather reports with quite the seriousness that they should.

One occasionally comes across pilots who are quite inordinately proud of certain adventures in the way of flying low down valleys that have, by reason of low cloud, been made into tunnels, or of flying along railway lines with the ceiling below the level of the taller factory chimneys. Such adventures are pleasant enough in retrospect and make excellent stories to relate to one's friends, but they do rather suggest that the pilots in question have failed to use the common gumption with which most mortals are provided.

A few weeks ago, for instance, a private owner was due to fly down to Southampton from the Midlands. The weather at his destination was perfect, but at his own aerodrome the visibility was half a mile and the cloud base at 200ft. or lower. Conditions were much the same at Upper Heyford, but much better at Farnborough. Obviously, if he set off he would be flying into better weather; but he was dissatisfied, and telephoned to Sywell, where, it turned out, the clouds were on the ground.

Now, a less cautious person might have set off with the idea of following roads or railway lines until the weather improved, and the higher ground in the South Midlands would undoubtedly have forced him either down or back. The alternative would have been to climb up through the clouds and to pray that Southampton would remain clear—a very insane project without a turn indicator, and a fairly insane one with a single engine and no radio.

The Air Ministry radio-meteorological station at Borough Hill—this is actually the old Daventry station, and is in the heart of the Midlands—transmits regular weather reports on 1,181 metres and according to the original Heston time-table. Within a week or two the broadcasts will probably be made on a much more elaborate scale and at more frequent intervals. This future time-table was given in *Notice to Airmen*, No. 63, of this year.

Spares to Carry

PPRIVATE aeroplane owners, as opposed to private car owners, do not usually appear to carry anything much in the way of spare parts. Admittedly it is difficult to know what to carry, but there are certain fittings for certain aeroplanes that might be extremely useful on occasion.

After one or two unfortunate experiences, a friend of mine now carries a spare inner tube, a tail skid spring and a check wire.

He tells me that during the past few weeks he has seen a club aeroplane kept on the ground because a tyre had gone and this small club had no spare, as well as a commercial machine stranded with burst tail wheel tyre at an important aerodrome, and he himself has broken a check wire on another aerodrome, where, also, no spare was to be obtained.

INDICATOR.

FROM the CLUBS

Events and Activity at the Clubs and Schools

WITNEY AND OXFORD

Flying hours last week totalled 21, of which 15 represented solo flying. Mr. L. F. Henstock passed the tests for his "A" licence.

ROYAL AIR FORCE

Negotiations are in progress as a result of which the club is likely to have a branch at Heliopolis in Egypt in the near future.

Baron D. R. C. B. de Sarigny, F/O. H. W. A. Chesterman, and F/O. A. R. Turpin have recently joined the Club.

READING

"A very popular win for a very popular person" is the verdict at Reading on the result of the King's Cup Race.

On Wednesday, September 4, a cocktail party was held at the Clubhouse, and the thirteen Miles King's Cup machines were shown off.

Last week's flying time was 75 hr.

HANWORTH

The Air League's *Pou*, which is being housed at Hanworth, gave a demonstration on Saturday, being flown by M. Mignet.

Last week (during which Mr. S. B. Noel-Brown became a member, Messrs. Woodle and Roberts went solo, and Mr. Bayly passed his "A" licence tests) 57 hr. 50 min. flying was recorded.

On Friday, September 13, there will be a dinner-dance at the Hanworth Country Club.

HAMPSHIRE

Sir Alliot Verdon Roe's second eldest son, aged seventeen, is learning to fly with the Hampshire Club.

During August the club's five machines flew 305 hr. 10 min. The Hon. Edward Ward, Capt. R. St. C. Davidson, R.E., and Messrs. Moldon, Lumsden, Waters, Fish, Owen, Verdon Roe and Burridge became members, Mrs. E. E. Leathes and Messrs. A. H. Lee and Swanston went solo; Mr. Swanston qualified for his "A" licence.

BROOKLANDS

Capt. Olley, of Olley Air Services, and Mr. John Grierson, are both taking blind flying courses at Brooklands. Mr. A. J. S. Morris has completed all his "B" licence tests, Mr. Pitman has gone solo, and Messrs. Richards, Wrohan and Baker have become members.

September 21 will be the official opening date of the South Coast Flying Club. Members of the Brooklands and Sywell Clubs have arranged to fly to Lympne for lunch, after which their formation will be joined by machines of the Cinque Ports Club, the whole formation proceeding to Shoreham, where it will be received by the Mavors of Brighton, Hove and Worthing. It is hoped that Sir Harry Preston will be present, and that he will take the chair at the dinner which will be held at the Grand Hotel, Brighton.

YORKSHIRE

Four members of the Club chartered the Short Scion for a trip to Le Touquet and back last week-end.

Mr. O. Cathcart Jones came over in a Monospar last week, and Mr. J. Nixon went solo.

CAMBRIDGE

Marshall's Flying School flew 55 hr. dual and solo last week, although the weather was none too fine. Last Sunday a record was created when 20 hr. was logged, 11 being flown by the Civil Aviation Service Corps.

REDHILL

M. and Mme. Mignet have been taken for flights in the Autogiro of the Redhill Flying Club.

A fair amount of cross country flying was done last week in spite of the weather, and Mr. E. C. Watson made the night flight for his "B" licence.

TOLLERTON

There was a slight decrease in the flying time at Tollerton last week owing to uncertain weather. However, Messrs. Dade and Spafford qualified for their "A" licences, and Mr. W. Clarke went solo. Mr. N. Baker, who is on holiday from Venezuela, has joined the Club as a flying member, and is training for his licence.

C.A.S.C.

On Friday and Saturday fifteen members were on duty at Hatfield for the King's Cup Race, and on Sunday twenty-three attended a meeting at Fen Ditton aerodrome. Eighteen of them flew, logging 13 hr. 15 min. flying, of which 1 hr. 40 min. was solo.

Mr. Jessepp has completed his "A" licence tests, and three other members are nearing the solo stage.

SOUTH COAST

The South Coast Flying Club, which is the latest addition to the Brooklands Group, started operations at the new Brighton, Hove and Worthing Municipal Airport on September 1. The main building is fast approaching completion, and part of the club premises is already open.

On Sunday Capt. Duncan Davis, Mr. Ken Waller and a large number of Brooklands members paid the club a visit.

Mr. Pashley, the instructor, has been busy and already has given over 20 hr. dual. In addition to the old members of the Southern Aero Club who have joined the South Coast Flying Club, the following eighteen have become members: Messrs. Myers, Martin, Wingfield, Scrope, Guy, Bayley, Dawson, Poole, Humphries, H. and J. Holmes, Mason, Anson, Lee, Pellett, Kearney, Cracknell and Baron.

PREPAREDNESS REWARD-

ED : All the eleven Miles Hawks and the two Miles Falcons lined up for inspection by a large number of guests on the day before the King's Cup entries were due at Hatfield for presentation before the scrutineers. The firm will probably go down in history as the first to be completely ready for the race, and their preparedness was certainly rewarded with four machines in the first five of the final. It was extraordinary that all the machines could have been brought for the presentation as many of them had already been delivered. During the afternoon Mr. Miles demonstrated the manoeuvrability of the New Hawk M.5. with a display of superbly executed aerobatics.



Private Flying

CASTLE BROMWICH

Flying times for last week were: dual 23 hr. 30 min., solo 13 hr. 10 min.

New members are Miss B. Biggs and Mrs. G. McCormack.

LANCASHIRE

Mr. G. F. Yuill has vacated the post of chief instructor at the Lancashire Aero Club, having taken up a position with Imperial Airways. "George" Yuill has been a popular and extremely careful instructor at Woodford for a number of years and his loss will be felt keenly.

ABERDEEN

A great stir was caused by the demonstration of the *Pou* on August 26. A crowd of approximately 5,000 people arrived.

Two private owners—Capt. G. L. Prendegast and Mr. T. Adam, are keeping their machines—a Leopard and a Gipsy Moth, in the hangars, having become members of the Club.

Messrs. R. Dempster and J. Donald passed their "A" licence tests last month, during which the flying time totalled 45 hr. 45 min.

NORFOLK AND NORWICH

At the annual garden party held on Saturday over 200 members of the British Association arrived. Eight Royal Air Force machines were available for inspection—an Audax, Rotax, Tutor, Gauntlet, Fury, Overstrand, Heyford and Hart. A bombing display was given by one of the instructors, and a bombing competition was organised for members. Mrs. F. Crossley gave an aerobatic display.

Last Wednesday M. Mignet brought over his *Pou*. Mr. H. Blount has taken his "A" licence, and Mr. E. W. Roythorne is taking instruction.

The Public Schools Aviation Camp report that nine licences were taken last week.

Sywell Progress

UNDER the first contract to be given a civilian flying school for training personnel for the Royal Air Force, flying training at Sywell is making great strides. Already fourteen aircraft and eight flying instructors are constantly employed.

New Sensitive Altimeter

THE Fairchild Aerial Camera Corporation have obtained the sales rights of the Paulin Level Flight and Altitude Indicator outside the U.S. Machines operated by Fairchild Aerial Surveys have been equipped for some time with this device, which registers changes of altitude as small as 25ft.

The De Havilland Sports

ATHLETIC events of many descriptions will be entered by teams and individuals competing for the inter-departmental trophy, presented by Capt. Geoffrey de Havilland, at the De Havilland sports on September 14.



KAY GYROPLANE IN THE AIR: Fit. Lt. A. H. Rawson flying the Kay Gyroplane at Southampton airport. This machine was first described in *Flight* of December 27, 1934. It has a unique method of varying the incidence of the blades and is undergoing tests for the Air Ministry. (*Flight* photograph.)

There will be, in addition, a motor cycle gymkhana, a model aeroplane display, side shows, and novelty events, and holders of "lucky number" programmes will be rewarded by flights.



At the Norwich Public Schools Aviation Camp: Reading from left to right the names are: Back Row: T. M. Walters (Canford), A. Meredith-Owens (Rossall), S. G. Wise (Kings College), R. D. Davis (K.C.S.), J. Korndorffer (K.C.S.), N. G. Rose (Clifton), J. E. T. Haile (Lancing), L. C. Osgerby (Uppingham), and C. R. Heycock (Lancing). Middle Row: K. R. G. Tomkinson (Winchester), J. F. Taunton (Secretary), F. G. A. Chase (Lecturer), H. Birchall (Organiser and Camp Commandant), A. A. Rice (Chairman, Norfolk and Norwich Aero Club), J. Collier (Chief Instructor), N. Daunt (Instructor), A. Kirkby (Instructor), P. T. Ashton (Stowe). Front Row: J. Anderson (Stowe), G. Kirkwood (Dover), D. Sassoon-Benjamin (Maiden Erleigh), J. Hird (Repton), O. Briginshaw (Tonbridge), J. N. Ball (Wrekin), P. L. Chignell (St. John's, Leatherhead), M. S. Barker (Stowe), S. Rhodes (St. Pauls).

TECHNICAL ASPECTS of the KING'S CUP RACE

Importance of Glossy Finish : Tapered Wings and Efficiency : The Undercarriage Question : Popularity of Wing Flaps : Variable-pitch Airscrews

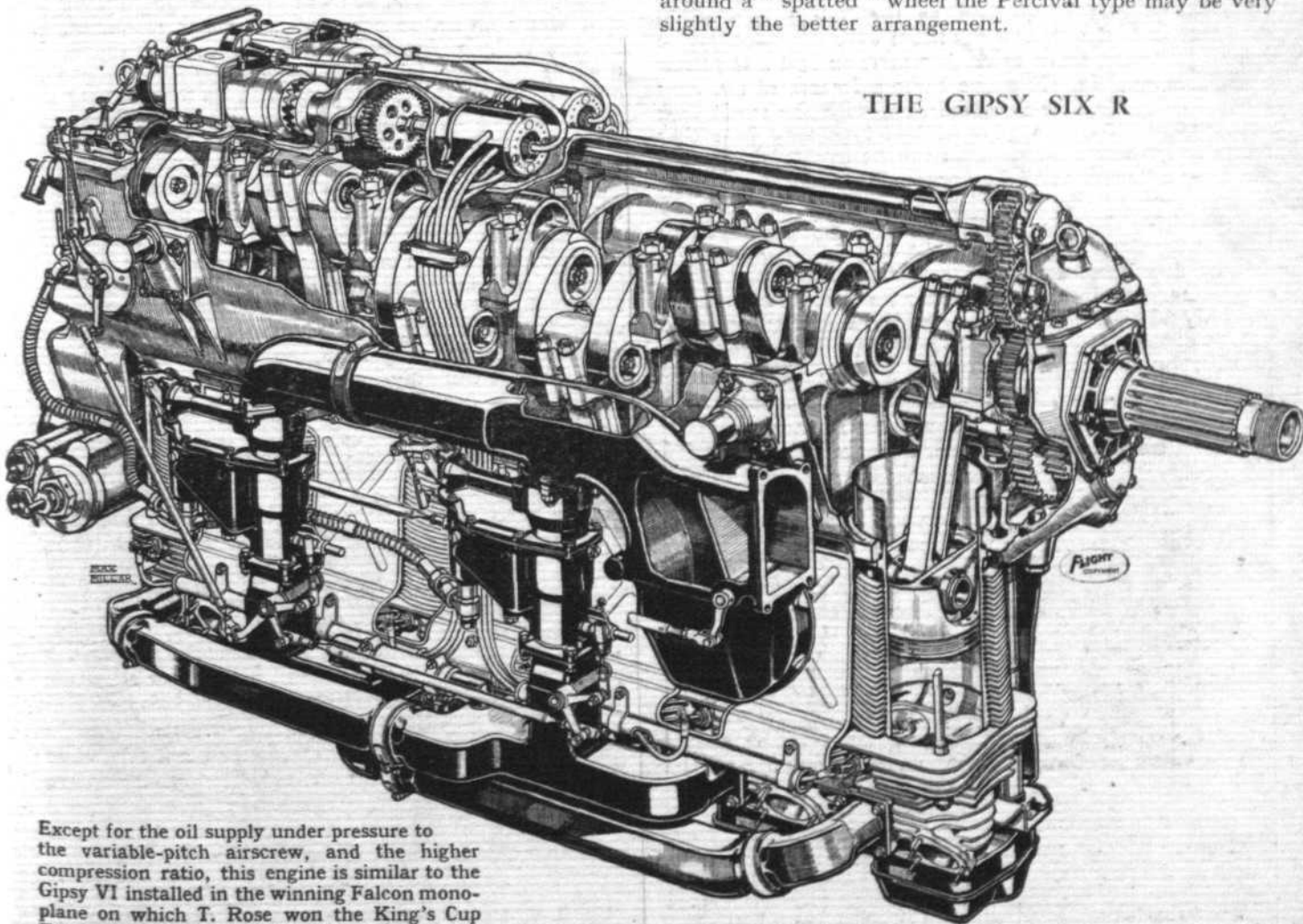
ONE more King's Cup air race has been flown, and once more it becomes desirable to study the results with a view to discovering any useful technical lessons which may have emerged in order to see how far they can be applied to future development.

First and foremost, the speed of "Tommy" Rose's Falcon surprised everyone, including the handicappers, and one naturally asks how Mr. Miles managed to get such an amazing speed out of this particular machine. There was little enough to distinguish it from Mr. Lipton's Falcon, except that it had smaller wheels and did not carry navigation lights. It is believed that some relatively small changes were made in the windscreen arrangement of the two Falcons; but although the particular form used is probably sensitive to quite small changes, it is scarcely to be assumed that the whole explanation is to be found there. The finish of the Falcon flown by Miles was rather more glossy than that of Lipton's machine. This may have accounted for a few m.p.h.. Individual engines of any given type do differ among themselves, and "Tommy" may have been fortunate in having a particularly good specimen. One can but assume that the very great improvement in performance must have been due to the cumulative effect of several small items. It is, perhaps, too much to expect Mr. Miles to disclose the full details!

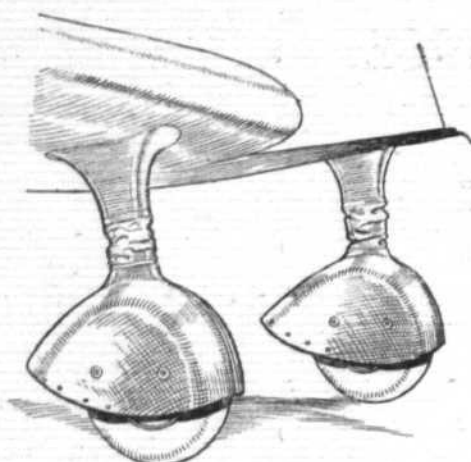
For several years designers have been divided on the question of undercarriages. The retractable type has found a few adherents, but in the race one found "trousered" and "spatted" undercarriages in the majority, and certainly the speeds put up by some of the machines so equipped do not lead one to regard them as serious obstacles to efficiency. They are probably lighter than the retractable type, and less complicated mechanically. Against that may perhaps have to be placed a certain tendency to clogging the wheels with mud when the machine is operated from soggy aerodromes. Mr. Miles has plumped for the "trousered" type, and the aerodynamic efficiency of his machines cannot be denied. It is somewhat curious that this type of undercarriage has taken so long to establish itself in view of the fact that it was used twelve or thirteen years ago on the German Aachen gliders, one being flown by Mr. Jeyes at the Itford glider meeting in 1923.

Differences were to be observed in the "spatted" undercarriages. Capt. Percival, for example, lets his "spats" follow the contour of the wheel part of the way down, and then adds a tail fairing ending in a short vertical knife edge. Others curve the top of the "spat" away from the top of the wheel, to end in a point at the tail of the "spat." It seems likely that in view of the flow around a "spatted" wheel the Percival type may be very slightly the better arrangement.

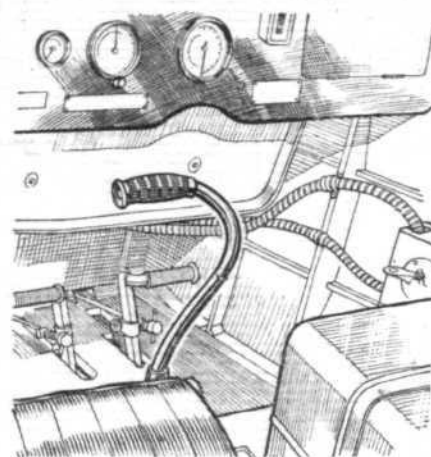
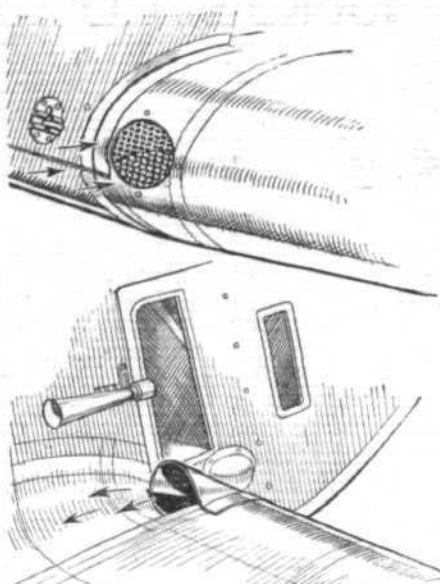
THE GIPSY SIX R



Except for the oil supply under pressure to the variable-pitch airscrew, and the higher compression ratio, this engine is similar to the Gipsy VI installed in the winning Falcon monoplane on which T. Rose won the King's Cup Race. The engine is rated at 205 b.h.p. and has a capacity of 9,186 c.c.



Shape is maintained in the centre portion of the compression legs of the T.K.2 by coiled springs behind the fabric. In the centre (top) is shown how the oil is cooled in the B.A. Cupid. The air enters the port leading edge, passes through the oil tank and out above the starboard wing root.



In the B.A. Cupid, the curved control column is mounted in a central position although still giving ample room for the pilot's legs.

The competing monoplanes (the almost total disappearance of the biplane was, of course, one of the features of this year's race) differed considerably in plan form and wing thickness. The Gulls and Hawks have moderate taper and thickness, the latter being carried well out towards the wing tips. The B.A. Eagles and Cupid show more pronounced taper in plan and thickness, while in the T.K.2 Mr. Langley has adopted a very pronounced taper, with extremely thin wing tips. One would expect this arrangement to be rather more efficient, but the race afforded no real comparison as the T.K.2 is a cabin machine while the other types fitted with the same engine were open types, flown as single-seaters and with the front cockpit covered in. It seems to be a feature of the very tapered wing that the tips stall first, with the result that an aeroplane having a wing of this type may be rather prone to go into a spin. This can be avoided by giving the wing a "wash-out," i.e., gradually reducing the angle of incidence as the wing tip is approached. Actually this has been done in the T.K.2. The price that has to be paid for this remedy is a slight drop in maximum lift.

Wing flaps were used on a considerable number of the competing machines. Their advantages are now fairly generally admitted, and the mechanical complications need not be considerable, as is shown by the Percival system. In this, by means of levers and toggles, the flaps are

operated direct by a simple lever similar to the hand-brake lever of a car. This system has the advantage that there is no "pumping" to be done, and the pilot can feel the load on the lever so that if he begins to lower the flaps at too high speed, the load on the lever warns him.

It was, perhaps, significant that with one exception all the machines in the race were fitted with metal airscrews. In watching the take-offs both on the Friday morning and on the Saturday afternoon, one could not help feeling that variable-pitch airscrews would have been well worth while on some of the faster machines. No British V.P. is, however, available yet for the engines used in the race (although judging by the noise which emanated from the wood just north of the Hatfield aerodrome during Thursday and Friday, this state of affairs may soon be remedied), but it will be very surprising if next year's machines do not show considerable numbers.

Of the engines in the race little need be said. The fact that out of twenty-nine starters twenty-three finished the eliminating course is sufficient proof of the amazing reliability of the modern medium-power aero engine. Twenty-one engines started in the Final (one machine being a twin-engined type) and twenty-one engines finished. In view of the fact that many of these engines had been run at full throttle, or very nearly so, in the eliminating trial, such a result can only be described as highly satisfactory.

SPECIFICATION OF THE WINNING MACHINE.

Miles Falcon Six (205 h.p. Gipsy Six Engine)

DIMENSIONS.

	ft.	in.	m
Span ...	35	0	(10.67)
Length ...	25	0	(7.62)
Chord ...	5	4	(1.60)

AREAS.

	sq. ft.	m ²
Main plane ...	174	(16.16)
Ailerons ...	17.4	(1.62)
Elevators ...	17.2	(1.61)
Fins ...	2.24	(0.21)
Rudder ...	7.24	(0.67)

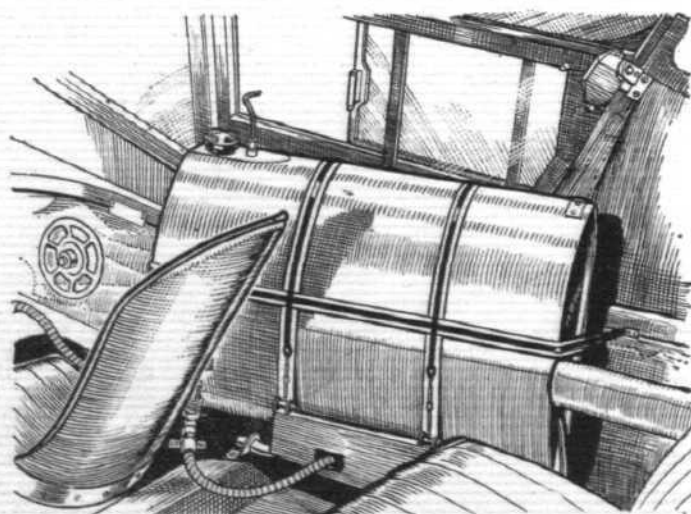
WEIGHTS.

	lb.	kg
Tare weight ...	1,550	(703.07)
Gross weight ...	2,350	(1,065.94)

PERFORMANCE.

	m.p.h.	km/h
Top speed ...	180	(289.68)
Cruising speed ...	160	(257.49)
Landing speed ...	42	(67.59)
Range ...	650 miles	(1,046 km)
Take-off run ...	150/200 yd.	(140/180 m)
Absolute ceiling ...	22,000ft.	(6,705.6 m)

Price £1,325, or £1,385 with flaps.



Mr. C. S. Napier's Gull (Cirrus Major) flown by Flt. Lt. E. T. C. Edwards had this extra fuel tank in the cabin in place of the third passenger seat.

THE ROYAL AIR FORCE



SERVICE NOTES AND NEWS

AIR MINISTRY ANNOUNCEMENTS

FRENCH AIR FORCE ACCIDENT

Sir Philip Cunliffe-Lister, Secretary of State for Air, has sent a message of sympathy to General Denain, the French Air Minister, expressing the profound regret of the Air Council at the disaster to two aircraft of the French Air Force during the Army manoeuvres on Thursday last.

A NEW CLASS OF SQUADRON

One of the squadrons which is to be re-formed under the expansion scheme, No. 48, is to be known as No. 48 (General Reconnaissance) Squadron, or, for short, as 48 (G.R.) Sqn. It will be equipped with the Avro Anson, and six other squadrons will be similarly equipped.

R.A.F. STATION, MANSTON

The R.A.F. Station, Manston, will cease to be administered by the A.O.C., No. 22 Group, with effect from December 1, 1935, on which date it will be placed directly under the A.O.C., Inland Area.

REAR ADMIRAL, AIRCRAFT CARRIERS

Rear Admiral the Hon. Sir Alexander Ramsay, K.C.V.O., C.B., D.S.O. (whose wife is Lady Patricia Ramsay, daughter of the Duke of Connaught), relinquished command of aircraft carriers on August 29, and was succeeded by Rear Admiral Noel F. Laurence, C.B., D.S.O.

THE N.W. FRONTIER

During the Mohmand rising on the North West Frontier of India the Peshawar and Nowshera columns have advanced to Ghalanai, routing the tribesmen and repairing the road. R.A.F. machines co-operated with the Army troops in dispersing the tribesmen.

NEW AERODROMES

The following is the list, up to date, of the new aerodromes which are being prepared under the R.A.F. expansion scheme:—Odiham, Hampshire; Feltwell, Norfolk; Markham, Norfolk; Ternhill, Shropshire; Harwell, Berkshire; Waddington, Lincolnshire; Cranfield, Bedfordshire; Thorney Island, Sussex; Stradishall, Suffolk; Manby, Lincolnshire; Church Fenton, Yorkshire; Hullavington, Wiltshire; Driffield, Yorkshire; Leconfield, Yorkshire; and Finningley, Nottinghamshire.

R.A.F. BENEVOLENT FUND

The usual meeting of the Grants Committee of the above Fund was held at Iddesleigh House on Tuesday, August 27. Mr. W. S. Field was in the chair, and the other member present was Air Comdre. B. C. H. Drew, C.M.G., C.B.E. The Committee made grants to the amount of £438 14s. The next meeting was fixed for September 10.

VACANCIES FOR BOY ENTRANTS

The Air Ministry announces that vacancies will occur this month for over 300 boy entrants, Royal Air Force. Entry is open to boys who were between 15½ and 17½ on August 1, 1935, and who have attended a secondary, junior technical or central school up to the age of 15½, or have attained an equivalent educational standard. Accepted boys will be given twelve to sixteen months' training as wireless operators, armourers and photographers. This method of entry is the normal system of recruitment for the foregoing trades and is independent of the special entry of young men over the age of 17 for training in the same trades which has been authorised in consequence of the expansion of the Royal Air Force. The number of vacancies is, of course, increased as a result of the expansion.

Intending applicants should write at once for details of the scheme and application forms to the Air Ministry (Boy Entrants Dept.), Admiralty House, Kingsway, London, W.C.2. Candidates will be required to obtain nominations from a recognised authority, which must reach the Air Ministry by September 15 to be in time for the next entry.

AIR FORCE LIST

The September issue of the *Air Force List* has now been published. It can be purchased (price 2s. 6d.) from H.M. Stationery Office at the following addresses: Admiralty House, Kingsway, London, W.C.2; 120, George Street, Edinburgh; 2, York Street, Manchester; 1, St. Andrew's Crescent, Cardiff; 15, Donegall Square, Belfast; or through any bookseller.

ACCIDENT IN INDIA

The Air Ministry regrets to announce that it has received a message from Headquarters, Royal Air Force, India, to the effect that whilst an aircraft of No. 5 (Army Co-operation) Squadron was unloading bombs at Abbottabad on the evening of September 5 one of the bombs exploded and this aircraft and an adjacent one were destroyed by fire. Sgt. George Whitlow Brereton and L.A./C. Roland Albert Ayers of the Royal Air Force, and 3906922 Private Brown (Christian name not known), of the South Wales Borderers, were killed. The following airmen were injured: Cpl. Robert Frost, Cpl. Samuel Ernest Fraser, L.A./C. Charles Edward Johnson, L.A./C. Frank Burton, L.A./C. Alfred Lee Tyler, L.A./C. James Oliver. In addition twenty-three Indian Other Ranks (Army) and one Indian follower were injured whilst two Indian followers are believed to have been killed.

EDUCATIONAL TESTS FOR PROMOTION

In view of the large requirements in non-commissioned officers which will result from the approved expansion programme and of the fact that there is a considerable body of airmen who are recommended for reclassification or promotion, but have not passed the educational tests prescribed, it has been decided, as a temporary measure, that until further notice aircraftmen 1st class, leading aircraftmen and corporals may, if recommended, be considered for advancement to the next classification or rank without having passed the appropriate educational test. Airmen advanced under the provisions of this order will be required to qualify educationally within the minimum of delay.

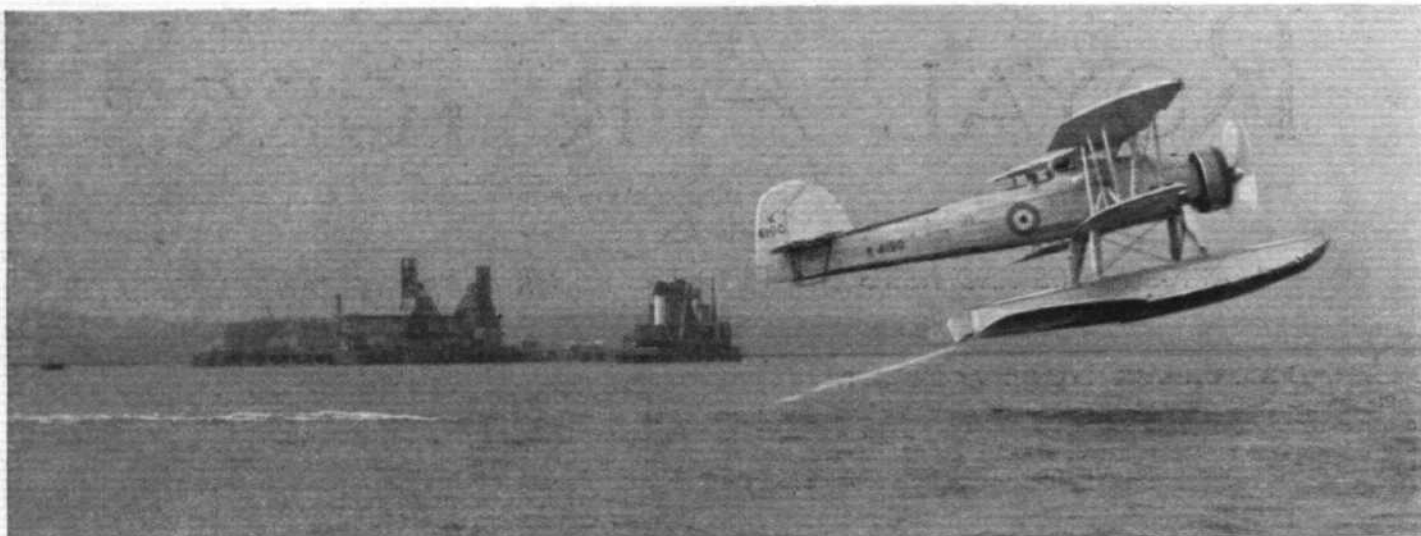
AIRCRAFT APPRENTICES WANTED

The Air Ministry announces: Not less than 750 vacancies will occur in January, 1936, for well-educated boys to be trained as aircraft apprentices in the following skilled trades of the Royal Air Force: fitter, wireless operator mechanic and instrument maker. Full particulars regarding entry and conditions of service may be obtained from the Secretary, Air Ministry (Apprentices Dept.), Admiralty House, Kingsway, London, W.C.2. Applicants must have attained the age of fifteen years and be under the age of seventeen years on January 1, 1936. A competitive examination will be conducted at numerous local centres early in November, 1935, the subjects being English and General Knowledge, Mathematics and Science. Applicants possessing an approved first school certificate with specified credits may be excused the entrance examination. No previous trade experience is required. The closing date for the receipt of nominations for the January entry is Tuesday, October 1.

VACANCIES FOR APPRENTICE CLERKS

The Air Ministry announces that vacancies exist in the Royal Air Force for well-educated boys (in possession of an approved first school certificate) between the age of 15½ and 17 years 3 months to enter as apprentice clerks in October and January next. Preference may be given to candidates who will have attained the age of 16 years. Detailed information regarding the apprentice clerk scheme can be obtained from the Secretary, Air Ministry (Apprentice Clerks Department), Victory House, Kingsway, London, W.C.2. Successful candidates will be required to complete twelve years' regular Air Force service after reaching the age of 18. At the age of 30 they will normally return to civil life but a limited number may be permitted to re-engage to complete twenty-four years' service, qualifying for pension.

Apprentices will normally receive eighteen months' training in clerical duties, typewriting, practical office routine, shorthand (for Clerks, General Duties), pay and store accounting (for Clerks, Accounting). Their general education will also be continued under a staff of graduate teachers. During training and while under the age of 18, an apprentice clerk at present receives pay at the rate of 1s. a day for the first year and 1s. 6d. a day afterwards. A much higher rate is issuable when he has both attained the age of 18 and successfully completed the course. In addition, free board and lodging and an allowance for uniform are provided.



ONE OF TWO: Both the Blackburn Shark and Fairey Swordfish torpedo spotter reconnaissance biplanes are being delivered to units of the Fleet Air Arm. Here the floatplane version of the Swordfish is seen during take-off tests. The engine is a 690 h.p. moderately supercharged Pegasus III. Note the curious streak of spray.

ROYAL AIR FORCE GAZETTE

London Gazette, September 6
General Duties Branch

The following Flying Officers are promoted to the rank of Flight Lieutenant:—G. Nelson (August 1); E. J. P. Davy, U. Y. Shannon (August 3).

The following Pilot Officers are promoted to the rank of Flying Officer:—C. L. Dann (October 3, 1934); G. A. Mills (June 16); D. P. Hanafin (July 16); B. J. Paul (August 6).

Lt. K. Williamson, R.N., Flt. Lt., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (August 23); Flt. Lt. D. Menzies is transferred to the Reserve, class A (August 24); F/O. P. H. Maxwell is transferred to the Reserve, class A (August 25); Flt. Lt. A. W. Sandeman resigns his permanent commission (September 1).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers
General Duties Branch

D. I. Peacock is granted a commission as Pilot Officer in class AA(i) (August 23).

The following Flying Officers are transferred from class A to class C:—D. G. P. Fitzpatrick (August 12); W. N. L. Cope (August 29).

F/O. H. N. E. Salmon is transferred from class AA(i) to class C (June 8); F/O. R. M. H. Noble is transferred from class AA(ii) to class C (July 24); Flt. Lt. (Hon. Sq. Ldr.) F. W. Winterbotham relinquishes his commission on completion of service and is permitted to retain the rank of Squadron Leader (August 15); Flt. Lt. R. H. McC. Sheppard relinquishes his commission on completion of service and is permitted to retain his rank (September 1); F/O. C. H. Hockly relinquishes his commission on completion of service (May 8).

SPECIAL RESERVE

General Duties Branch

F/O. G. B. Iles is promoted to the rank of Flight Lieutenant (July 29).

AUXILIARY AIR FORCE

General Duties Branch

No. 605 (COUNTY OF WARWICK) (BOMBER) SQUADRON.—P. A. Dawes is granted a commission as Pilot Officer (July 25).

No. 608 (NORTH RIDING) (BOMBER) SQUADRON.—The following Flying Officers are promoted to the rank of Flight Lieutenant (August 1):—J. L. Clayton, H. C. Newhouse.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commanders.—T. W. Elmhirst, A.F.C., to R.A.F. Station, Abingdon; to command vice Wing Cdr. G. W. Robarts, M.C., 26.8.35. R. G. Gardner, D.S.C., to R.A.F. Station, Bircham Newton; to command vice Group Capt. R. Collishaw, D.S.O., O.B.E., D.S.C., D.F.C., 27.8.35. G. W. Robarts, M.C., to R.A.F. Station, Donibristle; to command vice Wing Cdr. J. V. Steel, O.B.E., 26.8.35. H. A. Smith, M.C., to No. 3 Armament Training Camp, Sutton Bridge; to command vice Wing Cdr. C. L. King, M.C., D.F.C., 24.8.35. D. Colyer, D.F.C., to D.S.D., Dept. of Chief of the Air Staff, Air Ministry, 2.9.35, vice Wing Cdr. F. H. M. Maynard, A.F.C. F. H. M. Maynard, A.F.C., to London University Air Squadron, 2.9.35; to command.

Squadron Leader.—J. S. Chick, M.C., A.F.C., to Headquarters, Air Defence of Great Britain, Uxbridge, 2.9.35; for Air Staff duties vice Wing Cdr. J. W. B. Grigson, D.S.O., D.F.C.

Flight Lieutenants.—L. T. Pankhurst, to No. 825 (F.S.R.) Squadron, Mediterranean, 21.8.35. E. L. J. Rowe, to Superintendent of R.A.F. Reserve, Hendon, 24.8.35. C. R. Lousada, to No. 6 Flying Training School, Netheravon, 23.8.35. F. M. V. May, to R.A.F. Station, Gosport, 29.8.35. W. R. Sadler, to Headquarters, Air Defence of Great Britain, Uxbridge, 29.8.35. C. C. Bazell, to No. 1 Stores Depot, Kidbrooke, 2.9.35. A. P. Bett, to Central Flying School, Upavon, 2.9.35. H. R. Dale, to Central Flying School, Upavon, 2.9.35. W. S. Hebden, to R.A.F. College, Cranwell, 2.9.35. D. Macfadyen, to London University Air Squadron, Northolt, 1.9.35. J. N. T. Stephenson, to No. 1 Air Defence Group Headquarters, 2.9.35.

Flying Officers.—J. W. Deacon, to No. 2 (Army Co-operation) Squadron, Manston, 23.8.35. P. Godfrey, to No. 26 (Army Co-operation) Squadron, Catterick, 23.8.35. J. N. Knowles, to No. 812 (F.T.B.) Squadron, Mediterranean, 21.8.35. R. Leigh, to No. 16 (Army Co-operation) Squadron, Old Sarum, 23.8.35. E. M. Lewis, to Air Armament School, Eastchurch, 1.9.35. M. A. Payn, to No. 2 Armament Training Camp, North Coates, Fitties, 28.8.35. P. R. Robin-

son, to No. 823 (F.S.R.), Squadron, 28.8.35. W. C. Sheen, to No. 6 Flying Training School, Netheravon, 2.9.35.

Pilot Officers.—J. B. Brolly, to R.A.F. Station, Calshot, 30.8.35. S. T. Misselbrook, to Air Navigation School, Andover, 2.9.35. R. E. Dupont, G. M. Lindeman, R. D. Welland and V. C. Wood, to R.A.F. Depot, Uxbridge, 26.8.35, on appointment to Short Service Commissions. T. G. Young, to No. 13 (Army Co-operation) Squadron, Old Sarum, 1.9.35.

Acting Pilot Officers.—B. G. Carroll, G. P. Flew, F. A. Holmes, T. M. Tinker, and R. P. Widdowson, to No. 1 (Army Co-operation) Squadron, Manston, 1.9.35. R. M. Coad, A. N. Cole, J. P. Marriott, T. G. Tideman, and D. Walker, to No. 26 (Army Co-operation) Squadron, Catterick, 1.9.35. A. S. Downes, J. C. Millar, E. T. T. Nelson, and D. C. Smith, to No. 16 (Army Co-operation) Squadron, Old Sarum, 1.9.35. K. N. M. Eyres, C. E. E. Florigny, and W. M. Norman, to No. 22 (B) Squadron, Donibristle, 1.9.35. D. C. R. MacDonald, V. R. Oats, R. N. Smith, and L. J. Stickley, to No. 4 (Army Co-operation) Squadron, South Farnborough, 1.9.35. W. E. Surplice, R. F. See, and W. G. Wells, to No. 13 (Army Co-operation) Squadron, Old Sarum, 1.9.35.

Stores Branch

Wing Commander.—W. J. King, I.C.M., to H.Q. Fighting Area; for Equipment (Stores) Staff duties, 21.8.35.

Squadron Leader.—A. E. Sutton-Jones, to the Packing Depot, Sealand, to command vice Sqn. Ldr. J. H. Dale, 22.8.35.

Flight Lieutenant.—F. H. Bedford, M.C., M.M., to Air Ministry Department of Air Member for Supply and Organisation, 26.8.35. A. G. Stuart-Tuke, to Mechanical Transport Storage Unit at Hendon, 22.8.35.

Accountant Branch

Flight Lieutenant.—R. W. Collinson, to School of Army Co-operation, Old Sarum, 26.8.35.

Medical Branch

Flying Officer.—H. L. Willcox, to No. 6 Flying Training School, Netheravon, 1.9.35.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —



A NON-COMPETITOR: Imperial Airways' Boulton Paul *Boadicea*, coming in to land at Hatfield on Friday. Among others, Mr. Jeffs, of the Croydon control staff, who had been taking a busman's holiday, returned with the machine to Croydon. (*Flight* photograph.)

THE WEEK AT CROYDON

*A Charter Race : Croydon's King's Cup Team : The Noise Problem Again :
Tarmac Take-offs : Charter Competition*

ON Tuesday of last week, when the funeral of the late Queen of the Belgians took place, Haren, airport of Brussels, was closed to all but Service machines, and Antwerp had to be used by newspaper-hired "specials." Four machines left Antwerp for Croydon almost simultaneously, a Dragon and the Avro 642 of Commercial Air Hire, Brian Allen's Leopard Moth and another machine of the same type privately owned and flown by Mr. Macdonald, to whom we take off our hats, for he reached Croydon first with quite a nice margin and had his plates through Customs and away to London in double quick time. Actually the 642 was held up for a few minutes at Antwerp. The newspapers, and the taxi firms who work for them, owe Customs a debt of gratitude for the excellent co-operation given on these occasions.

What is said to be a new commercial record was set up last week by M. Cocquyt, who is Sabena's chief pilot, when he flew from Brussels (Haren) to London (Croydon) in 1 hr. 10 min., tarmac to tarmac, with an actual flying time of 65 min.

Croydon's King's Cup "team" consisted of Capt. Hope with his Gipsy Comper Swift, Capt. Flynn and Mr. Turner with a Gipsy VI Gull, Mr. T. W. Morton, of Olley Air Service, with a Percival Gull, and Mr. M. le W. Avery with a Comper Streak. Of these, only Hope and Morton started, the others scratching before the race, to the general disappointment. Hope changed mounts and raced with the Leopard Moth belonging to Sir Derwent Hall-Caine. Mr. S. L. Turner had sold his Gull to Brian Allen, who has fitted it with long-range tanks, so that he has now two Gulls (one with Gipsy Major) with 1,800- to 2,000-mile ranges. People murmur that they are to fly to and from Abyssinia when and if the trouble starts.

One of the three Rapides belonging to the Netherlands New Guinea Petroleum Co., and to be used for survey work, arrived at Croydon for fitting with the Pollock-Brown automatic pilot and left for Amsterdam on Friday completely equipped.

Belgian officials in London sent two magnificent wreaths from Croydon to Brussels on Monday of last week for the Royal funeral. They were sent on Imperial Airways' noon machine.

Olley Air Service had a busy week-end from August 31 to September 2. Three racing specials for the Belgian Grand Prix carried the jockeys obtaining the first three places and the trainers of horses placed first and third. It is not known what happened to the trainer of Number Two, but if he does not travel by air he will probably never train a winner. Olley machines also went to Newcastle, Deauville and Berck, as well as on a rush job leaving Croydon at 4.15 p.m., so that the client could catch the s.s. *Orontes* leaving Southampton at 5 p.m.

Owing to delay in notifying pilots that aeroplanes would not be allowed to leave Haren until after 2 p.m., many machines landed at that aerodrome instead of at Antwerp. During last week-end, incidentally, Air Dispatch passengers to Le Touquet included Wallace Beery and Miss Jean Collin, leading lady in "Tulip Time."

Dr. Kaye, the Superintendent of the Physics Department, National Physical Laboratories, recently delivered a lecture on "noise," in which he said that noise of aircraft was a growing nuisance to those living near aerodromes or on air routes. Modern houses, he remarked, did not give the same protection from noise as the solid houses of a generation ago.

At Croydon we receive, at times, bitter complaints from people who have recently and deliberately built houses on the edge of the aerodrome—presumably of waterproofed cardboard in modern style. It is refreshing to hear that the blame lies mainly with the modern builder and not with us.

British Continental Air Lines took delivery of their first D.H.86 last week and, on the very day of delivery, had a special charter to Paris with the machine. An unusual air traveller, recently, was an owl, consigned by K.L.M. from Prague to London for re-forwarding to Belfast.

Notice to Airmen No. 91 asks pilots to avoid taking off

Commercial Aviation

across or in the vicinity of the paved apron in front of the control tower, thus depriving machines of the maximum possible run in certain wind directions. A few months ago a letter was sent round threatening Ministerial displeasure if pilots did not in every case take the maximum possible run available. I assume that pilots may obey either of these instructions which happens to suit them best at the moment.

Some complaints have been heard because Imperial Airways compete in the special charter and joy-riding fields of aerial activity. Those who say that they should not be allowed to do so have overlooked several practical points. Clients

sometimes demand special machines to carry twenty people with luggage, steward, bar, and food, and will be content with nothing less. Which of the other companies can take on such a job? Joy-ride parties often come to Croydon forty or fifty strong and refuse to go up in small batches. Moreover, airport authorities in various parts of England consider a "genuine giant air liner as used by Imperial Airways," and complete with Imperial pilot, to be a definite "draw." If business of this sort comes to Imperials, is it to be refused? If any of the other companies possessed a 30/40-seater aeroplane the case might be a different one. A. VIATOR.

A Loss to Air Transport

IT is rarely that the full extent of a person's interests and experience are realised until it is too late to do more than admire. Last week both Airports, Ltd., and air transport generally lost a man of outstanding value when Flying Officer Lawrence Pilkington Hirsh was killed as a result of a car accident near Gravesend.

Thirty-two years of age, Mr. Hirsh had been for seven years a serving officer in the Royal Air Force, during which period he was, for a time, in command of Pulham airship station. In 1930 he joined the staff of Imperial Airways, took a full instructional course, and was one of the pioneers of the Cape route. At the time of his death Mr. Hirsh was manager of Gravesend airport.

Fuel Regulations in U.S.

A NEW Department of Commerce regulation in the United States stipulates that all airline machines must carry sufficient fuel and oil to fly for forty-five minutes beyond the time required for any flight. This reserve must be over and above that required by abnormal weather conditions, and is intended purely to guard against unforeseen contingencies.

The previous regulation demanded a reserve of 35 per cent., so that, theoretically, a machine flying between two airports only ten miles apart need have only 3.5 miles of "flying" left afterwards in the tanks. The new rule, if properly carried out, should help to prevent the possibility of accident through fuel failure in bad weather—a cause of at least two recent accidents in America.

From Heston

MOST flying people are now used to seeing new buildings and new landing areas added to Heston airport, but it is perhaps fortunate that not many have been able to penetrate into the Control Tower to find out how Heston's sphere of activity has expanded recently in the matter of radio control. Heston control has nearly seventy regular aircraft on its board, whose progress they record on the new D/F map which recently arrived from the Air Ministry. All these are quite distinct from the innumerable flying nomads who ask and listen for weather, position and traffic advices.

News has been received from Airwork's associated company, Indian National Airways, Ltd., that H.H. The Maharaja of Jammu and Kashmir, who has made Heston a London terminus for his many polo expeditions, is flying out to Karachi, where Indian National are to meet him and fly him to Srinagar (his summer capital), the landing being made on the new aerodrome which has just been laid down under His Highness' instructions.

During last week nearly every pilot at Croydon and Heston appeared to have either just returned from or be starting to Brussels with his photographer and newspaper passengers. Commercial Air Hire had a busy time, one machine making no fewer than three trips on one day. Owing to the delay in notifying pilots that no aircraft were permitted to leave Brussels airport until after midday on the day of the Royal funeral, many machines landed there instead of at Antwerp and were unable to get back. During the entire morning frenzied newspaper men implored the pilots to get them back to London, but the Belgian Air Ministry was adamant, and the eagerly sought permission to leave was not granted until 2 p.m. The activity that followed resembled the start of an air race. Commercial Air Hire's Avro 642 was the second to land at Croydon, the few minutes' difference between it and the winner being lost in starting the engines at Brussels.

Commercial Air Hire have been running special night flights over London during the period of the Jubilee flood-lighting, which was between Monday and Thursday of this week.

Owing to the increase of business abroad, Air Dispatch and Commercial Air Hire have opened agencies in Antwerp, Brussels, Amsterdam and Lausanne.

Rochester—Portsmouth

A LITTLE less than a fortnight ago—on August 30—a new week-end service was opened between Rochester and Portsmouth by Short Bros., which company has, during the past two seasons, operated a Thames ferry service with the help of Southend Flying Services. The fares are £1 8s. single and £2 2s. return, and the machine leaves Rochester at 5 p.m. on Friday and Portsmouth at 9.35 a.m. on Monday. A Short Scion is used.

Traffic at Southampton

THE traffic figures for August at Southampton show a considerable increase over those of the previous month. There were 2,808 in-passengers and 2,706 out-passengers. Weather conditions have been fair with the exception of four days when clouds were down to 300ft., though only three services had to be cancelled.

Major Travers, of Spartan Air Lines, had an alarming experience when leaving in bad weather with a Dragon. The starboard engine cut out shortly after taking off, but Major Travers was able to complete a circuit on one engine and land safely. The trouble was found to have been caused by a small bird, which had somehow avoided the propeller and flown into the air intake, completely blocking the carburetter.

In the Philippines

THERE are now two companies operating air lines in the Philippine Islands—the Philippine Aerial Taxi Co. and Hoili-Negros Air Express Co. The former runs between Manila and Baguio with two Bellanca Skyrocket D's and a Waco, while the latter runs from Iloilo to Manila, Bacolod, La Carlota and Cebu with two trimotor Stinson U's and one Stinson Reliant.

Both companies do a great deal of charter work and both have air mail contracts from the Philippine Government. For the moment no radio facilities are available, but the weather is generally uniform except in the typhoon season, when flying must be suspended for a period of two or three days during the height of each typhoon. Actually, last year the scheduled air lines failed to operate on only five days, and some 21,000 passengers were carried.

Safety Modifications

AFTER one of the four-engined Fokker F.22 machines belonging to the K.L.M. crashed on July 14, owing to the fact that the two left-hand engines failed immediately after the take-off, the remaining machines of this type, as well as the F.36, were temporarily taken out of service for investigation and for extensive tests to be made with the fuel system.

Although these tests gave full satisfaction, it was realised that it is impossible to reconstruct the conditions which occasioned the accident, and it was decided to change the fuel system. Both F.22s and the F.36 have now once again been put into service.

The K.L.M. fuel system has been removed and replaced by a new system designed and carried out by the Fokker works in consultation with the technical staff of the K.L.M. In this system fuel pumps of greater capacity have been installed, and such modifications have been made that if the emergency hand pump is used it is not necessary first to switch over. The possibility of errors has been completely eliminated, and during the practical tests this system proved to be absolutely fool-proof.

It will be remembered that the F.22 supplied to the Swedish A.B.A. was already fitted out with the Fokker fuel system when it was delivered to this company.

One can only congratulate the K.L.M. and Fokkers on the way in which they have admitted the possibility of a fault in the fuel system and have proceeded immediately with the necessary modifications.

AUSTRALIA TO-DAY

Present Air Services and Future Plans "Down Under"

WITH its wide and thinly populated areas over which neither fast roads nor railways could be laid down with any hope of profitable returns, Australia has always appeared to be an ideal continent for the development of air services. Yet the history of civil aviation there has been an amazingly chequered one.

Since the reorganisation of the subsidised air transport system and the selection of four pioneer firms for short-term subsidies—which, incidentally, expired at the end of June this year—things appear to be on a much firmer basis. At the moment of writing two newly formed companies are planning new services, and at least two of the older companies have important extensions in view.

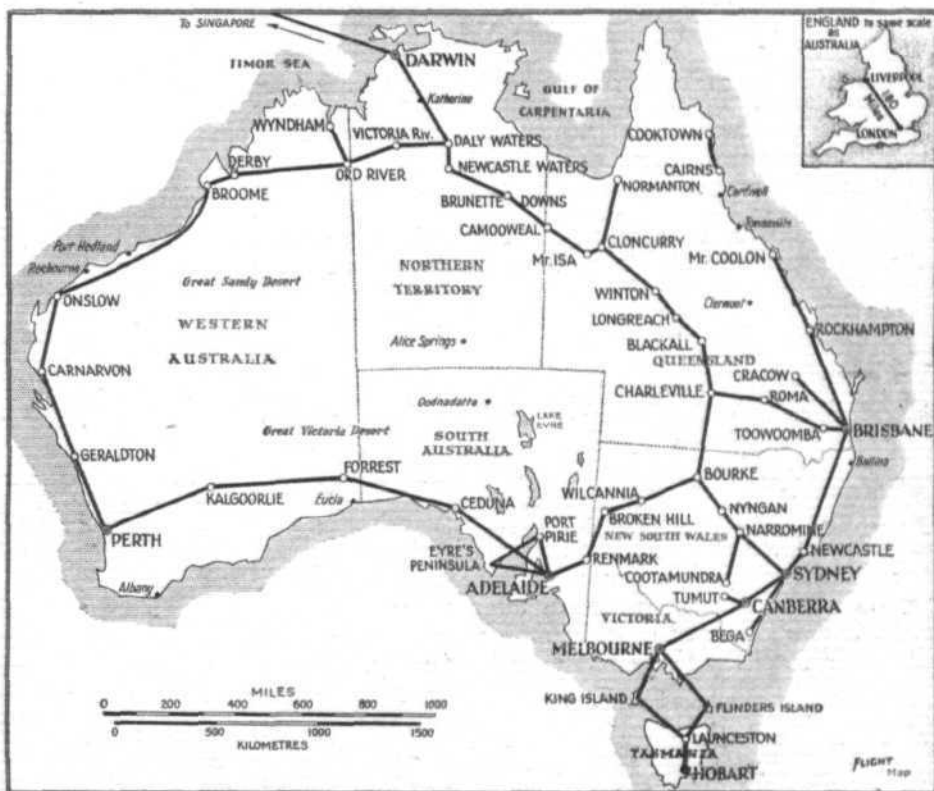
Tenders for mails were invited in September, 1933, and the successful bidders were: Qantas Empire Airways for the Singapore, Darwin and Brisbane section of the trunk Empire route, and for the Cloncurry to Normanton extension; Butler Air Transport for the Charleville and Cootamundra section; the MacRobertson-Miller Aviation Company for the Daly Waters, Broome and Perth section, previously operated by Western Australian Airways; and Holyman's Airways (formerly Tasmanian Aerial Services) for the Melbourne-Hobart crossing. De Havilland machines are used by all these companies, and weekly schedules are observed save in the case of the Bass Strait service, which is operated daily and alternately *via* King Island and Flinders Island. Western Australian Airways, Major Norman Brearley's concern and one of the pioneers of air transport, continues to operate a passenger and freight service between Perth and Adelaide.

So much for the major routes. Short-term subsidies were allowed for the pioneer companies operating between Brisbane and Cracow, Rockhampton and Mt. Coolon, Sydney and Bega and Adelaide, Port Pirie and the Eyre's Peninsula towns. In addition, short lines are run by independent operators between Cairns and Cooktown in Queensland, between Sydney, Narromine and Nyngan and between Sydney, Canberra and Tamut. The last two are operated by comparatively new companies, and one, Eastern Air Transport, has Sir Charles Kingsford Smith on the board.

A number of interesting developments

are expected later this year or early in 1936. New England Airways, at present running between Sydney, Newcastle and Brisbane, will, when they take delivery of their ordered Monospar S.T.18s, extend the service to Adelaide. Holyman's Airways have ordered another D.H.86, and expect, during the autumn, to run between Melbourne, Canberra and Sydney.

In addition, a new company, Adelaide Airways, have ordered Monospar S.T.25s, and hope to connect Adelaide with Port Lincoln, York Peninsular and Kangaroo Island. Transcontinental Airways have some very ambitious ideas. Using Junkers machines, the company proposes to operate between Sydney, Cootamundra and Adelaide, between Sydney, Canberra and Melbourne, between Melbourne and Adelaide and between Adelaide and Darwin. The last service will cut straight across the Continent.



The air route system of Australia since the new contracts were made. The inset map gives a visual indication of the considerable distances to be covered.

Radio for Leicester?

WITH their first winter before them Crilly Airways are anxiously awaiting the fate of the application of Leicester Corporation for D/F equipment at Braunstone.

The application has been backed up with amazing persistence by Mr. F. Leo Crilly, who has urged upon the Air Ministry the importance of such equipment during the coming months. His case is supported by a recent forced landing made in fog in a field only a couple of miles from the airport—a landing which would have been unnecessary if D/F radio had been installed at the aerodrome.

Bellanca's for Speke

THE INTERNATIONAL AIRCRAFT DISTRIBUTING COMPANY has paid a deposit of 10,000 dollars (£2,000) to the American Bellanca Company in respect of British manufacturing rights for Bellanca aircraft, which are to be made at Speke, Liverpool. A draft of the proposed agreement with the Liverpool Corporation has been forwarded to the promoting company and arrangements are in hand for the formation and financing of a British manufacturing company.

Air Mails in the Pamirs

A REGULAR air service between Khorog and Murgab, in the Pamirs, is shortly to be opened. The machines will fly this difficult route at an altitude of 16,000ft. Mail and freight transportation between these two points is now maintained by means of donkey packs, which for seventeen days make their way along narrow mountain paths winding over precipices.

The first flights over the Khorog-Murgab air line were made by Mr. Lubchenko, who has a record of 3,000 flying hours in Tajikistan.

The Cardiff Accident

AT the resumed inquest on the pilot and two passengers of the Western Airways machine which crashed near Cardiff foreshore on July 22, an open verdict was returned.

Major Cooper, in the course of his evidence, added that he was of the opinion that the pilot "executed a manoeuvre which caused the aircraft to stall and fall into a spin at a height which was insufficient to enable him to effect a complete recovery from the ensuing dive."

FLYING the NEW DRONE

By H. A. TAYLOR

*Impressions of the Latest
Version of a Well-
established Ultra-light
Single-seater*

PERIODICALLY during the past fifteen years or more people have talked loosely of the flying machine for the multitude, and even proclaimed its immediately impending arrival. If the various considerations of design or construction and the lack of a suitable engine had not made themselves apparent, the fact that the vast majority of mortals looked upon all forms of aircraft as both expensive and dangerous would once have been enough to prevent such a type from becoming reasonably popular.

Now, however, there are in this country alone some 3,400 licensed pilots, the majority of whom cannot afford to continue to fly or to put in more than a very few hours every year. There is also an infinitely greater number of young people with a passionate desire to get into the air. While the number of prospective owners of ultra-light machines which are inexpensive to operate may or may not be limited—we are all shy of the minor responsibilities of ownership—there should be a very large number of people who would be prepared to fly for sheer amusement if their club flying rate happened to be low enough.

There is no doubt that the B.A.C. Super Drone, as the new model is called, can be operated for an extraordinarily low figure. The makers, in fact, have made some interesting calculations to show that the all-in running costs over three years should amount to rather less than nine shillings an hour. This figure is based on the assumptions that 500 hours are flown in a year and that the machine is completely written-off at the conclusion of the period.

Be that as it may, the new Super Drone is, as a flying machine, a very great improvement on the original model, which, nevertheless, was flown with satisfaction by a number of disinterested pilots. Apart from the facts that it is rather faster, has a greater range, and incorporates a number of interesting refinements, the airframe has been entirely rede-

signed so that the machine is under full and adequate control both on the ground and in the air right down to stalling point.

Dealing first with the detail improvements, the most important is the fact that the wings can now be folded, reducing the width, for hangarage, to a matter of ten feet. The wings hinge around a point at the rear spar and are supported in the folded position by two jury struts and wires. In later models the wing tips will be firmly held to the fuselage, so that the machine can be safely towed in the folded condition. The wing and strut attachments follow normal practice, and the spars and fittings have been considerably strengthened.

A wider and taller undercarriage, coupled with the use of a steerable castering tail wheel, now allow the machine to be completely and safely controlled on the ground. There is quite a spacious compartment for luggage behind the pilot's seat, which, incidentally, is now adjustable in the fore-and-aft positions.

The new 750 c.c. Douglas engine, which develops a maximum of 28 h.p., has a neatly faired mounting in which the oil tank is incorporated, and the fuel tank is now placed inside the fuselage. This tank holds from 6½ to 7 gallons, and the cruising range has, consequently, been increased to a matter of 5½ hours—or, in still air, 300 miles. The cruising endurance is consequently rather better than that of many light aeroplanes that have been regularly flown during the past few years.

So much for what may be called the points of "ground interest." The really important modifications from the pilot's point of view include a washout at the wing tips and larger, mass-balanced ailerons to improve the lateral control (which, it must be admitted, was not too good on the original model), a longer fuselage with a forwardly moved centre of gravity, and increased elevator and rudder area. These modifications have brought the machine into line, so to speak, with accepted ideas of how an aeroplane should handle, and have, at the same time, made it as nearly as possible foolproof. Neither the pilot of normal aeroplanes nor the absolute novice should have any difficulty with the machine either in the air or on the ground.



A number of modifications, together with the use of a 750 c.c. Douglas engine, result in a considerably enhanced performance and improved control for the Super Drone. Mr. Kronfeld demonstrates its controllability at Hanworth. (Flight photograph.)



Mr. Robert Kronfeld, managing director of B.A.C. (1935) Ltd., in the cockpit of the Super Drone. With him are Mr. E. C. Gordon England (director) and on the left, the latter's brother, Sqn. Ldr. T. H. England. (Flight photograph.)



Not quite so startling as it appears—merely the Super Drone with its wings folded, thus reducing the width for housing purposes to 10 ft. Note the wide undercarriage. (Flight photograph.)

Last week I had a chance of flying the Super Drone for the first time, and spent a most pleasant and comfortable half-hour or so floating—the word is used in its actual rather than metaphorical sense—around the machine's home at Hanworth aerodrome. Without previous experience either of the original Drone or of more than a quarter of an hour in an intermediate type of glider, I had expected to discover new and interesting difficulties, but in actual fact I treated the machine just as I would treat any normal light aeroplane.

After discovering that the business of taxiing was a great deal simpler, with the help of the steerable tail wheel, than is on most light aeroplanes, I turned into a very light wind and found that the machine was unexpectedly clear of the earth in some ten or twelve seconds. Ten minutes before Mr. Kronfeld himself had taken off in six or seven seconds—it is all a matter of practice. There was little or no tendency to swing during the take-off, and the climb, at about 30-35 m.p.h., was perfectly straightforward, though at such a comparatively low speed there is a tendency for the machine to "wallow" slightly despite aileron and rudder corrections.

The view from the seat is, of course, quite without parallel, and the best impressions are obtained without either helmet or goggles. If it is suspected that someone in a fast aeroplane is coming up behind, one can see through quite wide arcs at

the rear by looking under the wings. Meanwhile, the whole earth and sky is stretched out ahead.

This particular prototype Super Drone had, unfortunately, no engine revolution counter, and, after throttling back to what appeared to be a comfortable engine speed, the climb to a thousand feet took some five minutes at the recommended air speed. Actually, this altitude can, with higher revolutions, be reached comfortably in three minutes, and 3,000 feet, Mr. Kronfeld explains, can be topped in ten minutes. The calculated service ceiling is 12,500ft.—a fact which may surprise the cynical. Unfortunately, too, the A.S.I. was suffering from a trouble which prevented accurate reading at the lower end, and both gliding and climbing speeds were held by guesswork complicated by calculation.

No registered stalling speed figures can therefore be given, but the landing was made at a speed which must have been less than 25 m.p.h. In actual fact the stall is of the most innocuous variety; the nose simply drops momentarily and the aileron control remains weak but adequate through the entire phase. At cruising speed—a matter of 55-60 m.p.h. on the clock—all the controls stiffen up, and the machine then ceases entirely to control its own destinies to the slight degree experienced at very low air speeds. Turns can be made practically at the stall, and sideslips are perfectly normal, with a tendency for the nose to fall away at lower speeds. The adequate rudder and aileron control, incidentally, is very valuable for "swish-tailing" away surplus speed.

During my approach in a series of steep gliding turns the air speed, as afterwards discovered by comparison, was definitely on the low side, yet there was little tendency for the Super Drone to take control. A slight reluctance to change bank, perhaps, and that was all.

With the perfect view and the good control the landing is the simplest possible affair. If a novice allowed the machine to stall high the gentle dive could do little more than mild damage. Mr. Kronfeld, in fact, often brings the machine in, for demonstration purposes, in a series of stalls, gauging his height so that the last dip coincides with the last few feet of usable height! Not, perhaps, a recommended method—but one which proves that the new Drone is virtually foolproof.

B.A.C. SUPER DRONE

750 C.C. (28 H.P.) DOUGLAS HORIZONTALLY OPPOSED TWIN-CYLINDER ENGINE

Weights

TARE WEIGHT WITH ALL EQUIPMENT	390 lb.
FUEL, 6½ GALLONS	50 "
OIL, 1 GALLON	10 "
PILOT	160 "
LUGGAGE	30 "
ALL-UP WEIGHT	640 lb.

Areas and Loadings

SPAN	39ft. 8in.
SPAN (WINGS FOLDED)	10ft.
WING AREA	172 sq. ft.
LENGTH	21ft. 10in.
LENGTH (WINGS FOLDED)	27ft. 10in.
HEIGHT	7ft.
WING LOADING	3.7 lb./sq. ft.

Performance

MAXIMUM SPEED	70 m.p.h.
CRUISING SPEED	60 m.p.h.
LANDING SPEED	22 m.p.h.
RATE OF CLIMB AT SEA LEVEL	380 ft./min.
SERVICE CEILING	12,500ft.
FUEL CONSUMPTION	1.25 gall./hour.
RANGE AT CRUISING SPEED	300 miles.
TAKE-OFF	45 yards.
LANDING RUN	45 yards.

PRICE (with A.S.I., Altimeter, oil pressure gauge, compass, logbook and registration fee), £275 ex works.

MAKERS: B.A.C. (1935) Ltd., London Air Park, Feltham, Middlesex.

Marconi Appointments

HIS many friends in the aircraft industry will be interested to learn that Mr. F. S. Mockford has been appointed manager of the aircraft department of Marconi's Wireless Telegraph Company, Ltd. Mr. Mockford will thus be renewing his close association with the industry of the early days of commercial aviation in this country when, as an Air Ministry official, he was largely instrumental in the building up of the wireless organisation at Hounslow, and later at Croydon, during the first eleven years of its development.

Another appointment is that of Captain J. M. Furnival, who is to be manager of the company's new aircraft works at Hackbridge, where he will assume full control of all wireless research and development work

A REMARKABLE MEDIUM BOMBER

The New Boulton Paul Superstrand : Provision for Dive Bombing : 191 m.p.h. at 15,000 ft. : V.P. Airscrews Optional : Fully Supercharged 670 h.p. Pegasus IV Engines

IT is amazing how far the development of a good basic design may be carried. From the time the first Sidestrand was produced, many years back, it was apparent that the Boulton and Paul Company was "on a good thing." Over a period of years various marks of Jupiter engines were fitted to the Sidestrand, the performance being increased with each new installation, and eventually the Pegasus type was fitted. The structure was strengthened, permitting considerably greater all-up weight, performance benefited greatly, and provision was made for the crew to work in increased comfort and with greater efficiency. The Overstrand is now re-equipping No. 101 (B) Squadron which was the original—and, in fact, the sole Sidestrand squadron.

A Retractable Undercarriage

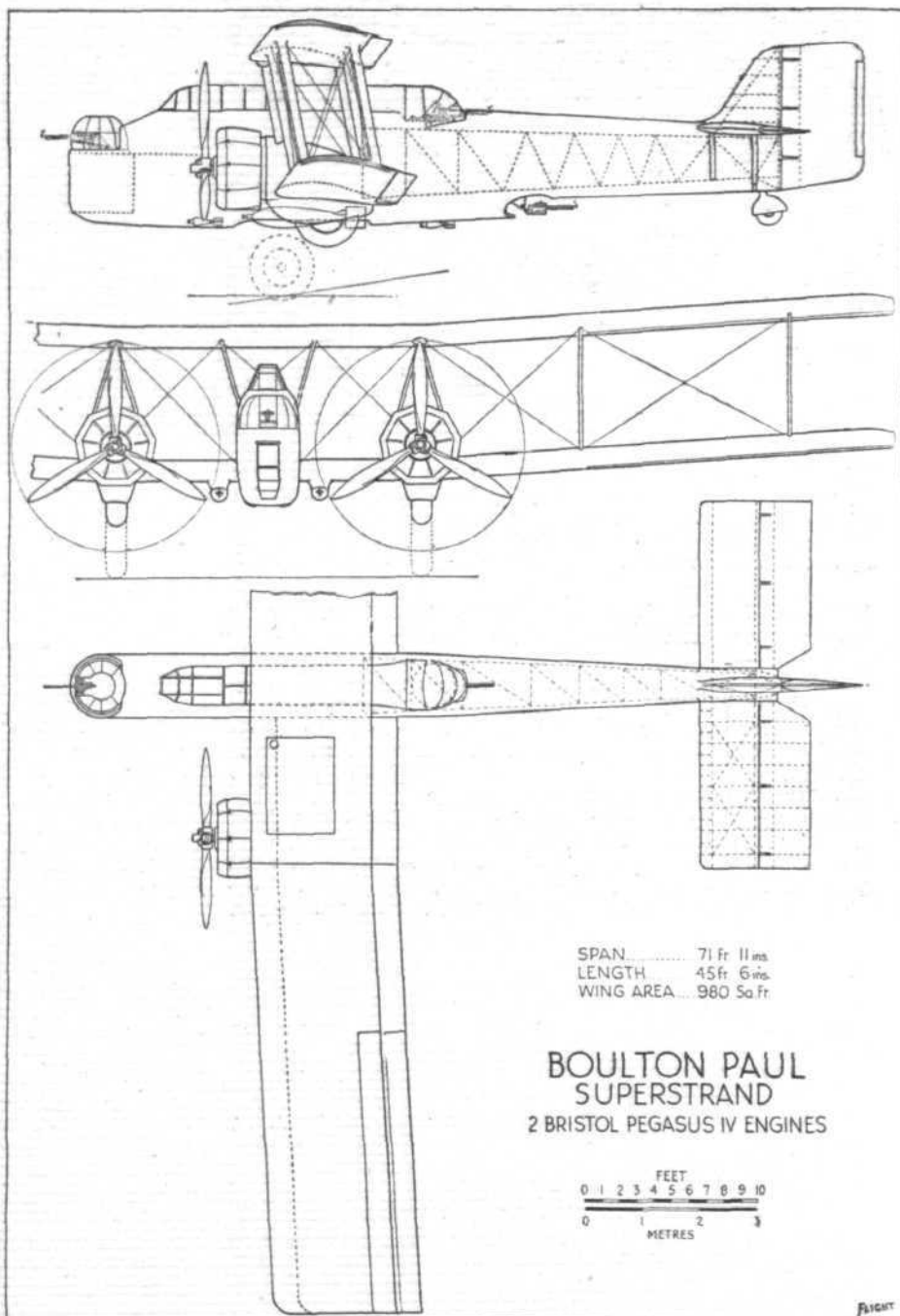
Now the company has further developed even the Overstrand, and the new design is known as the Superstrand day and night bomber. So far as the main structural features and the majority of the detail design are concerned, nothing radically new is included, but by comparison with the Overstrand the type has increased performance, range, and bomb load, and embodies, in addition, features which improve its aerodynamic qualities, such as retractable undercarriage—the first British biplane designed with this feature—and redesigned tail unit and more protection for front and rear gunners.

In general the design represents a twin-engined braced biplane of equal span. The main structure is of metal throughout, the more heavily stressed members (spars, longerons, the front portion of the fuselage, undercarriage members, etc.) being of high-tensile steel; duralumin is used for members carrying a secondary load, such as ribs, ailerons and certain lightly loaded struts in the rear portion of the fuselage. Those sections of the structure, the main function of which is to maintain aerodynamic form, such as cockpit decking, fuselage, engine and bomb cell fairings, are made in spruce and plywood, all external covering being doped fabric.

The main bomb load is stowed in a recess with detachable side fairings beneath the fuselage, but auxiliary racks are provided beneath the inner portions of the lower wing. Sufficient clearance is provided in the bomb cell for the release of the projectiles in steep dives, thus enabling the machine to be used as a dive bomber.

That the type is an exceptionally steady bombing platform will be obvious to those who know the accuracy of bombing established by the Sidestrands and Overstrands.

In the front cockpit is a Scarff gun ring equipped with a transparent dome-shaped protective covering. A window and a seat for bomb aiming are also contained in this forward



General arrangement of the Boulton Paul Superstrand.

cockpit. The pilot's cockpit is raised considerably above the level of that in the nose, and is provided with a transparent cover embodying sliding panels. Another Scarff ring, shielded by a folding transparent hood which merges into the fairing behind the pilot's cockpit, is situated mid-way along the fuselage aft of the main planes. There is, in addition, a prone gun position beneath the fuselage with a special gun mounting for downward firing similar to that on the Overstrand and Sidestrand.

Cockpit heating with individual controls can be provided for all the crew stations. Wireless apparatus and a camera are accessible to the rear gunner.

The tail plane is adjustable over a range of incidence, and the elevators and rudder, which are of the inset balance type, are provided with flap-type servo controls in their trailing edges. Frise-type ailerons are fitted to all four main planes, making for exceptional manoeuvrability.

The engines specified are of the Mark IV Pegasus type, fully supercharged and geared, the normal output at the rated altitude of 11,500 ft. being 640/670 h.p. At maximum r.p.m. they deliver 680/710 h.p. at 15,000 ft. Fuel (440 gallons) of

87-octane number is carried partly in the fuselage and partly in the top centre plane, supply to the engines being by gravity through a common junction box. The engines are carried on quickly removable mountings on the bottom centre sections, and equipped with Boulton Paul Townend rings. Although four-bladed, fixed-pitch wooden airscrews are fitted as standard, three-bladed two-position C.P. metal airscrews of Hamilton type may be supplied if required. The

resulting gain in performance and range can be seen at a glance from the accompanying table. The Superstrand is the first Boulton Paul design to embody a retractable undercarriage. This retracts mechanically into extensions of the engine nacelles. Oleo pneumatic shock-absorbers and wheel brakes are provided. The low-pressure tail wheel castors freely, and has a spring-loaded centralising device.

BOULTON PAUL SUPERSTRAND			
Medium Range Day and Night Bomber			
Two Bristol Pegasus IV. Engines 640/670 h.p. at 11,500 ft.			
Dimensions and Loadings		Performance	
Span (top and bottom)	71 ft. 11.3 in.		With fixed-pitch airscrews
Length	45 ft. 6 in.		With variable-pitch airscrews
Height (tail down)	15 ft. 4 in.	Maximum speed at 15,000 ft.	187 m.p.h.
Wing area	980 sq. ft.	Maximum speed at 20,000 ft.	181 m.p.h.
*Weight empty	8,806 lb.	Maximum speed at 25,000 ft.	175 m.p.h.
†Disposable load	6,198 lb.	Rate of climb at 15,000 ft.	850 ft./min.
Gross weight	15,004 lb.	Rate of climb at 20,000 ft.	525 ft./min.
Wing loading	15.3 lb./sq. ft.	Rate of climb at 25,000 ft.	200 ft./min.
Power loading (at 15,000 ft. and 1,400 h.p.)	10.7 lb./h.p.	Service ceiling	26,500 ft.
		Range (at 150 m.p.h. and 15,000 ft.)	1,000 miles
		Stalling speed	65 m.p.h.

* Weight empty includes 354 lb. of fixed equipment.
† The disposable load is made up as follows: crew 540 lb., fuel 3,388 lb., oil 270 lb., military equipment 402 lb., bombs and racks 1,598 lb.
The military equipment comprises three guns and eighteen 97-round drums S.A.A., 230 lb., pyrotechnics 6 lb., instruments (removable) 15 lb., electrical equipment 35 lb., wireless 56 lb., parachutes and miscellaneous 60 lb.
Performance and weights are subject to the following tolerances: speeds 3%, climb 6%, range 5%, weights 3%.

OPPORTUNITIES in the R.A.F.

Classes of Personnel Vacancies Under the Expansion Scheme Explained in a Broadcast Talk

PROSPECTS in the R.A.F. under the expansion scheme were neatly summed up in a broadcast talk delivered recently by Group Capt. Nanson, the Air Ministry Inspector of Recruiting. The talk, which is reproduced here by permission of the B.B.C., was as follows:— Exactly how much bigger an entry the programme means, not everyone perhaps realises. In the last three years we took in 1,100 (1932), 1,600 (1933), and 3,700 (last year). This year we are to take in about 10,000—nearly three times as many as the comparatively high figures last year. And this figure is only of man recruits—that is, it does not include pilots, though some of the very best of the recruits become pilots later, and it does not include apprentices and boys from secondary schools taken in for technical training. The whole scheme implies our expanding the training schools very considerably, and the entries have so to be regulated that there should be a steady flow throughout the year. The recruits go from the offices which have been set up in Belfast, Birmingham, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Plymouth and Portsmouth, or from London Headquarters at Victory House, to Uxbridge for a short general course and then on to the various schools for training in their particular trade. So far, of the ten thousand men we must have by March 31 next year, we have—up to to-day—finally taken on exactly 2,923 in the three months. The way they divide themselves up is interesting. The Air Force is, after all, mainly an engineering or mechanical service; that is why we take men who in civil life are fitters, blacksmiths, coppersmiths, sheet metal workers, turners, carpenters, and so on. The men with basic training as fitters are those we want first and foremost in order to supply our greatest need—aero-engine fitters. Of the 2,923 men I have taken on, 242 are men of this trade. I can take as many more skilled fitters as come forward. Of course, they need further training in the Service in aero engine work before they can take their place in Service squadrons. Then there are the semi-skilled or unskilled men—that is, men of eighteen or over, who begin by qualifying as Mates, that is, as assistants to the fitters, and mostly go on, after their six weeks' course of training for Mate, to another eight months' course for training as Flight Mechanic or Flight Rigger, according to whether they work on engines or airframes. The Flight Mechanic and Flight Rigger do responsible work maintaining aircraft in squadrons, working under the supervision of the fully skilled fitter. For this work we enter and train men who have been, for instance, motor

drivers, motor mechanics, fitters' mates, and machinists. During the past three months I have taken on 1,106 men under this category; 180 have had experience as motor drivers, 200 as motor mechanics, and 170 as fitters' mates. The rest are men who have had mechanical experience in other trades, or, if without such experience, have a mechanical turn of mind and are likely to be suitable with the training which we give them. I have vacancies for 4,000 more. Yet another "trade" is Wireless Operator, for which I enter men as young as seventeen, with secondary school or similar education behind them and an interesting but difficult course ahead of them, as they have to learn to keep very complicated sets in order as well as operate them. We like wireless enthusiasts—if we can get them—for Wireless Operators, but we take young men without any technical knowledge for this trade and also for Photographer and Armourer. I have taken on 471 such young enthusiasts, and there are a matter of 1,500 vacancies still. We provide the complete trade training for these young men; the only qualification we demand is the intelligence necessary to cope with the courses. The requirements this year are of course exceptional. So far they have been nearly one-third filled. I regard this as very satisfactory, and if this rate is maintained the remaining seven months will enable us to find the rest.

A "National" Celebration

UNDER the chairmanship of Mr. H. Hittinger a most enjoyable small dinner was given in London last Saturday evening by the National Benzole Company to some of the pilots—including Flt. Lt. T. Rose and other people connected with the King's Cup Race. Mr. Hittinger apologised to his guests for the hurriedness of the preparation, particularly as after the race it had been impossible to find many of the people whom they had wanted to attend the dinner. Mr. Smith, speaking of the race, pointed out that the winner, the second and eleven others in the race had all used National Benzole mixture. He also extolled the genius of Mr. F. G. Miles who had produced the first three machines to finish, and Maj. F. B. Halford, who had designed the engines. Flt. Lt. H. R. A. Edwards thanked the company for their excellent refuelling arrangements, quoting Woodford, where he had been enabled to take in 35 gallons in 55 seconds; he also paid tribute to Mrs. Edwards who, by writing to Phillips and Powis, had in the first place arranged for him to be able to fly the machine.

THE FARMAN STRATOSPHERE MONOPLANE

The Ill-fated F1001 : An Airtight "Supercharged" Cabin

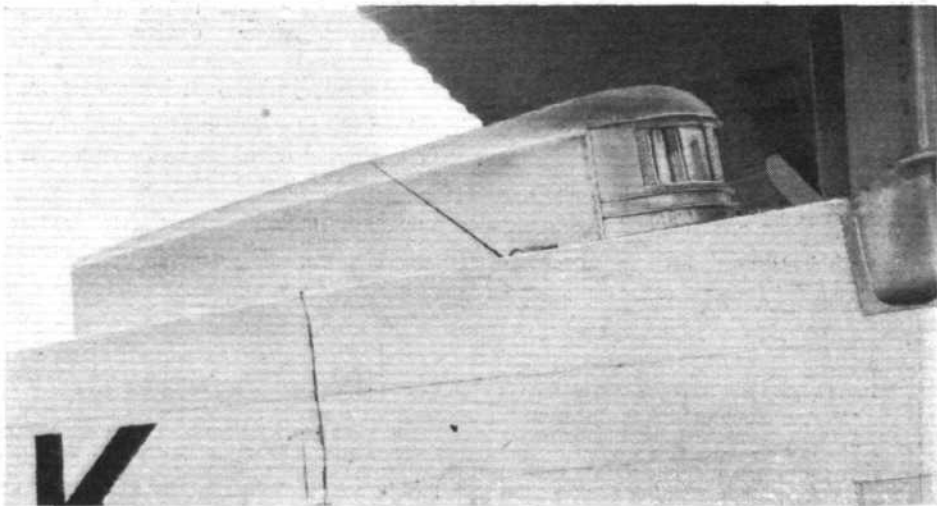
ONE of the most interesting aeronautical experiments for many years has been held up by the disaster, on August 5, to the monoplane built by the Farman Brothers for stratosphere flying. A description sent by our French correspondent tells of a number of extraordinary features.

The machine was demonstrated at the Toussus-le-Noble aerodrome on the day of the fatal crash. M. Cogno, the Farman test pilot, with about 2,000 hours to his credit, took off after the demonstration, taking a run of about 100ft., and climbed sharply. It had been announced that he would fly for an hour at 26,000ft., and then, for half an hour, at 32,500ft. The machine carried only three hours' fuel. Three and a quarter hours after the take-off a telephone call came through to the Farman aerodrome that the machine had crashed and the pilot had been killed in a wood at Bonneière, just west of Paris. The barograph was found intact. It showed that Cogno had climbed to about 34,000ft. and had made a level flight of considerable duration at that height. He had then descended sharply to 30,500ft., where he had again flown level. A rapid dive to earth was next indicated. An autopsy showed that Cogno, apparently, died during the flight. He had had a cerebral hemorrhage and burst his ear drums, due to the rarified atmosphere to which he had, in some way, been exposed.

Wooden Construction

The F 1001 was a large single-engined parasol monoplane designed by Mr. Henry Farman. Wooden construction was employed throughout, except for the pilot's airtight cabin and the engine cowling, which were of metal. Fabric covered the wooden structure. The span was 71ft. 6in., the length 35ft. 9in., and the wing area 754 sq. ft. Four struts supported the centre section of the wing, and a pair of parallel struts on each side braced the outer panels to the fuselage.

The airtight cabin for the pilot was cylindrical in shape, with metal walls about an inch thick. It had a capacity of 71 cu. ft. Both top and bottom were of convex



The airtight compartment for the pilot of the F1001. It was served by a small centrifugal engine-driven supercharger, was cylindrical in shape, and had walls about an inch thick.

form. The hood contained glass slides, which opened back on hinges. A small centrifugal supercharger, driven by the engine and controlled by the pilot, furnished increased air pressure at high altitudes, an exhaust valve for this air being provided in the bottom of the compartment. All bolts and joints were fitted with rubber gaskets and packing.

A twelve-cylinder inverted water-cooled Farman engine of "broad arrow" formation was fitted. The cylinder displacement was 1,466 cu. in. This engine drove a mechanically controlled, four-bladed, variable-pitch Farman airscrew, 13ft. 8in. in diameter. A 2.27:1 Farman reduction gear was employed. The engine was equipped with a two-stage Farman centrifugal supercharger, the first stage of which furnished an increased pressure of 1.8 atmospheres and which was to be brought into play at 11,370ft.; the second stage was to be used at 24,370ft. These two blowers gave an additional pressure of 2.7 atmospheres. A honeycomb radiator, 930 sq. in. in area, was mounted above the engine. Fuel tanks of 73 gallons capacity were located in the centre section and gave a duration of three hours.

The tare weight of the F1001 was 4,338 lb. and the gross weight 5,236 lb. Water accounted for 132 lb., oil for 66 lb., petrol for 528 lb., and the pilot for 172 lb.

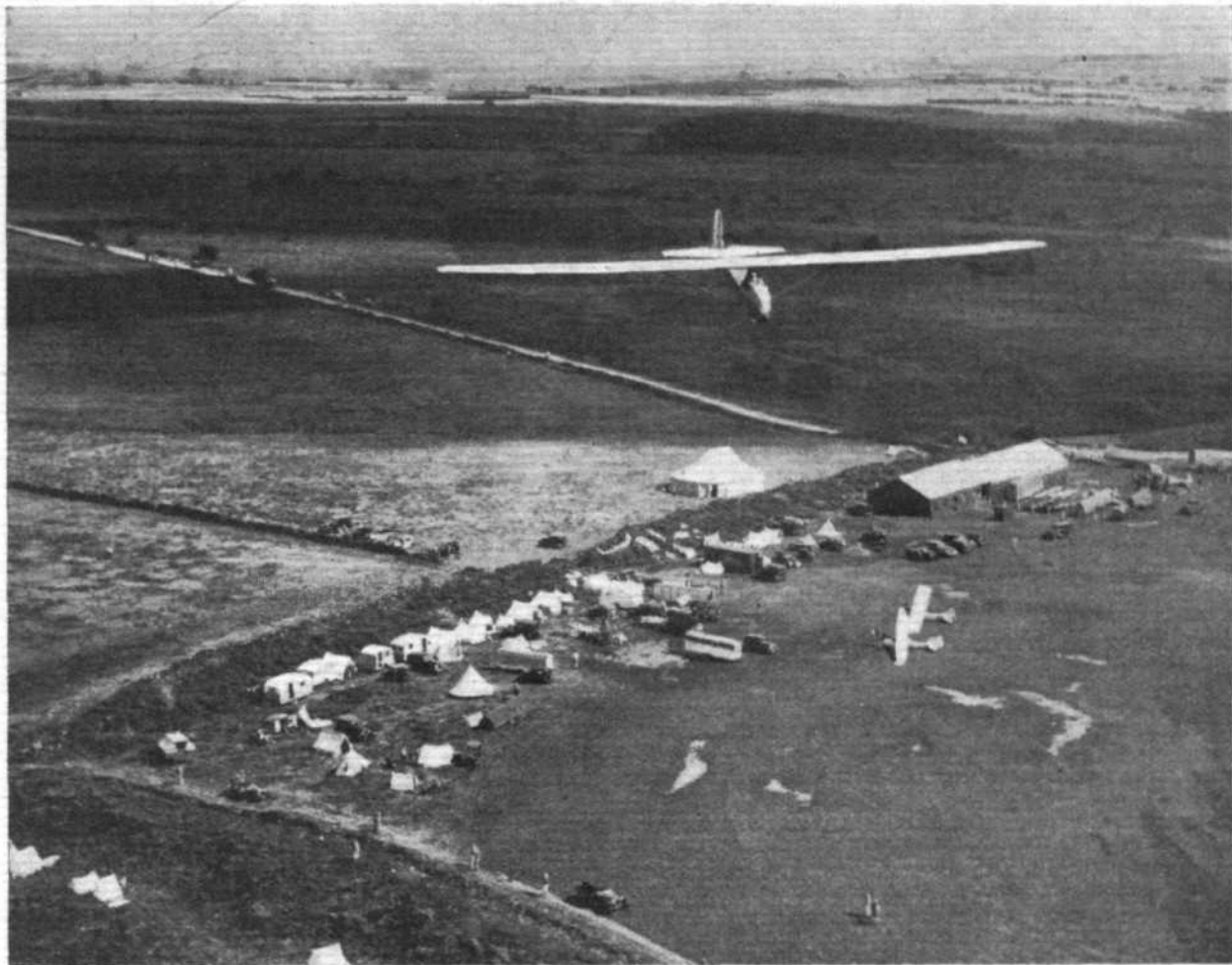


The F1001 was in no sense a pretty aeroplane. There seems little doubt, however, that had the crash not occurred it would have provided some extremely valuable data relevant to stratosphere flying.

A WEEK on the WIND

Some Observations on the National Gliding Competitions at Sutton Bank

By J. R. ASHWELL-COOKE



A photograph of the Sutton Bank camp taken from Mr. R. F. Stedman's two-seater sailplane. In the air is a Grunau Baby.

FOLLOWING upon the success of last year's National Gliding Competitions at Sutton Bank, Yorkshire, the same site was chosen for this year's meeting, reported briefly in *Flight* last week. The British Gliding Association received entries from London, Belfast, Brighton, Birmingham, Derby, Yeovil and Preston, so that there is no doubt that gliding is spreading steadily in popularity throughout the country.

With the arrival of the machines at the gliding ground on Saturday, August 24th, came the first surprise. No longer glider trailers rough timber frames covered with fabric; they are carefully designed and well constructed plywood boxes, carefully sprung and thoroughly roadworthy—evidently the first effects of the development of cross-country flying.

By the Sunday morning practically all the entrants had arrived, and the northern boundary of the site was dotted with tents, trailers, and caravans. A light easterly breeze provided very unsuitable conditions, and after Mr. Harris (Belfast Club) had spun his Scud II into the ground, and had been taken to hospital with a broken leg, flying was abandoned for the day.

Light south-westerly winds provided improved conditions on Monday, and the Hjordis, a new high-efficiency sailplane designed by Flt. Lt. G. M. Buxton, was flown by Mr. Philip Wills. The Rhonbussard, Golden Wren and three Falcon machines soon followed, and a total of eight and three-quarter hours' soaring resulted.

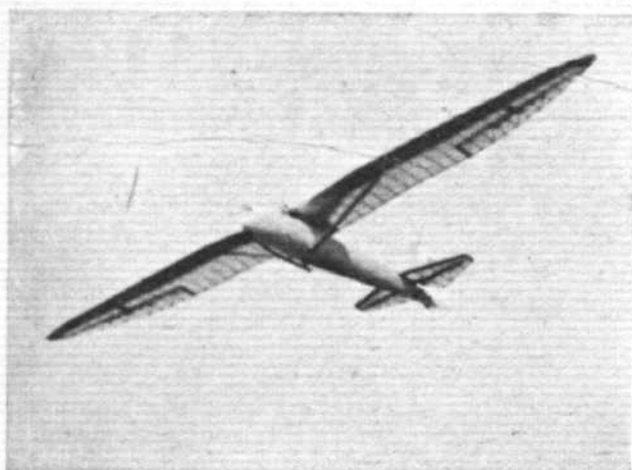
Conditions improved steadily, and Tuesday was a warm, sunny day with west winds. This was perhaps the most

spectacular day of the meeting, for at one period no fewer than twelve machines were in sight at the same time, and altitudes varying from 500ft. to 5,000ft. were recorded. The first machine to take the air was the Kirby Kite, a new sailplane, designed and built by Mr. F. Slingsby, and which had not been previously soared. Flown by Mr. J. C. Neilan (Yorkshire Gliding Club), it was soon lost to sight in an easterly direction, and was quickly followed by Mr. Wills (London Gliding Club) flying the Hjordis. By this time almost all the other competitors were in the air, and it was difficult to keep track of all the activities.

By lunch-time Mr. C. Nicholson (London G.C.), flying his Rhonbussard, Mr. H. Barker (London G.C.) flying a Scud II, and Mr. W. Filmer (Southdown Gliding Club), flying a Grunau Baby, had also disappeared. The remainder of the competitors contented themselves with numerous "out and return" flights in the vicinity of the gliding ground.

Cross-country

Meanwhile, news began to filter through concerning the achievements of the cross-country pilots. Neilan had landed at Aldbrough, near Withernsea, a distance of sixty-one miles; Nicholson reached the R.A.F. Aerodrome at Catfoss (48 miles); Wills was forced down at Foggathorpe, near Selby (32 miles), having attained an altitude of 5,000ft. en route; Barker landed at Coneysthorpe (20 miles); and Filmer reached the aerodrome at Welburn, about twelve miles away. Retrieving-cars with trailers were soon off to collect the machines, and everyone returned to Sutton Bank the same evening. General satisfaction with these performances was the order of the day, while Mr. Slingsby, the designer of the



The new Kirby Kite, the first gull-wing sailplane to be built in England. The designer and builder is Mr. F. Slingsby, and the machine was flown by Mr. L. Neilan.

Kirby Kite, came in for special congratulation on the excellent performance of his latest product.

On the Wednesday conditions were more difficult than the day before, and no one succeeded in winning the competition for an outward and return journey to Arncliffe Hall. Several pilots attempted the journey, but only Mr. Wills (London G.C.) and Mr. Neilan (Yorkshire G.C.) left the immediate vicinity of the ground. Neilan succeeded in locating thermal lift, and disappeared almost at once into the clouds. Wills followed him and ran into a heavy rainstorm about two miles from the turning point; turning about, he attempted to get back to his starting point, but failing wind forced him down at Sutton, about four miles away. During the flight he reached an altitude of 5,600ft. Neilan also encountered the storm, but continued on his course until he was forced down at Ingleby Cross, about half a mile beyond the turning point.

As the competition of the previous day had not been decided, Arncliffe Hall was again the objective on the Thursday, and the contest was won by Mr. Wills. Mr. Briscoe (London G.C.) and Mr. Filmer (Southdown G.C.) also attempted the journey, but were forced down *en route*.

In the vicinity of the gliding ground there was also great activity, and seventeen different machines were flown by various pilots for a total 45½ hours. During the day Mr. Penrose, test pilot of Westland Aircraft, Ltd., arrived with his new machine, designed and built by himself. The machine was quickly assembled, and Mr. Penrose flew for 2½ hours. On the Friday conditions were very unfavourable and, with the exception of a 28-minute flight by a Falcon, there was no flying throughout the day.



Mr. Philip Wills squeezing himself into the high-efficiency Hjordis sailplane (designer, Flt. Lt. G. M. Buxton). The coupé top is quickly detachable should an emergency exit by parachute be necessary.

The Saturday also was an uneventful day, although a total of more than thirty hours' flying was recorded. By the Sunday the wind had returned to the east and, with the exception of a flight by Mr. Nicholson (London G.C.), of one hour and a half's duration, most flights were little more than prolonged descents.

The most notable feature of the meeting was undoubtedly the greatly improved standard of the competing machines, in design, construction and maintenance. Among the new types, the Hjordis and the Kirby Kite were conspicuously successful. The Penrose Special, which has a wing span of only thirty feet, and weighs less than 135lb., is an interesting attempt to produce a really portable private-owner's sailplane, and in the brief time it was present certainly justified itself. Its future progress will be watched with interest.

The standard of pilotage was also noticeably higher than last year, but if the number of competitors continues to increase at its present rate pilots will certainly have to pay greater attention to the rules of the air. The ground organisation appeared sound, and one could not fail to be impressed by the general atmosphere of good sportsmanship, as exemplified by the frequent lending of machines to rival competitors, and the manner in which there appeared to be a constant supply of helping hands whenever there was a job of work to be done.

Apart from actual performances and achievements there is no doubt that this annual assembly of gliding interests is of great value for the dissemination of information and experience.

SEEN AT THE KING'S CUP RACE



(Left) Sir Philip Cunliffe-Lister removes his helmet after arriving on Saturday in a Hawker Hart of the Communications Squadron. He is chatting with Lord Gorell, chairman of the Royal Aero Club. (Right) Mr. Charles Powis and Mr. F. G. Miles talk it over with Mr. F. N. St. Barbe, De Havilland business manager.